ESPRIT

748 EXPRESS+ & 748+

LISTED

Installation Manual

VERSION 3.20

PARADOX

SECURITY SYSTEMS

TABLE OF CONTENTS

INTRODUCTION 1
1.1 About This Manual 1
1.2 Features 1
1.3 Specifications 2
1.4 Accessories & Keypads 2
1.5 About Paradox 2

INSTALLATION 3
2.1 Location & Mounting 3
2.2 Earth Ground 3
2.3 Power 3
2.4 Telephone Line Connection 4
2.5 Bell/Siren Output 5
2.6 Programmable Outputs (PGM) 5
2.7 Keypad & Keyswitch Connections 5
2.8 Keypad Zone Connections 5
2.9 Single Zone Input Terminal Connections 7
2.10 Advanced Technology Zone (ATZ) Connections 9
2.11 Fire Circuit 10
2.12 Serial Output Connector 11

ACCESS CODES 12
3.1 Installer Code 12
3.2 Master & User Codes 12
3.3 User / Access Code Length 12
3.4 Duress 12
3.5 Installer Lock 12

PROGRAMMING METHODS 13
4.1 Espload Software 13
4.2 Keypad 13

PANEL SETTINGS FOR ESPLOAD 16
5.1 Panel Answer Options 16
5.2 Panel Identifier 17
5.3 PC Password 17
5.4 Computer Telephone Number 17
5.5 Call Esploud 17
5.6 Answer Esploud 17
5.7 Cancel Communication 18
5.8 Call Back 18
5.9 Automatic Event Buffer Transmission 18

EVENT REPORTING 19
6.1 Reporting Options 20
6.2 Central Station Telephone Number 1 21
6.3 Central Station Telephone Number 2 22
6.4 System Account Codes 22
6.5 Communicator Formats 22
6.6 Reporting Event Codes 24
6.7 Auto Test Report 26
6.8 Manual Test Report 26
6.9 Power Failure Report Delay 26
6.10 Recent Close Delay 26
6.11 Report Zone Restore Options 27
6.12 Report Code Disarming Options 27

ZONE DEFINITIONS 28
7.1 Zone Speed 29

7.2 Advanced Technology Zoning (ATZ) . . . 29
7.3 Intellizones . . . 29
7.4 Silent Zones . . . 30
7.5 "24 Hour" & Fire Zones . . . 30
7.6 Instant Zones . . . 30
7.7 Follow Zones . . . 30
7.8 Entry Delay 1 . . . 31
7.9 Entry Delay 2 . . . 31
7.10 Partitioning . . . 31
7.11 Bypass Enabled Zones . . . 32
7.12 EOL Zones (Enabled/Disabled) . . . 32
7.13 Keypad Zone 1 Supervision . . . 33
7.14 Keypad Zone 2 Supervision . . . 33

ARM/DISARM & ALARM OPTIONS . . . 34
8.1 "Timed" Auto Arming . . . 35
8.2 "No Movement" Auto Arming . . . 35
8.3 "One-Key" Regular Arming . . . 36
8.4 "One-Key" Stay/System A Arming . . . 36
8.5 Arming using a keyswitch . . . 36
8.6 Bell Squawk . . . 36
8.7 Exit Delay . . . 37
8.8 Beep on Exit delay . . . 37
8.9 Alarm Transmission Delay . . . 37
8.10 Silent Zones & Silent Panics Option . . . 37
8.11 Bell Cut-Off Time . . . 37
8.12 Code Priority . . . 38

PGM (PROGRAMMABLE OUTPUT) . . . 39
9.1 PGM Types . . . 39
9.2 PGM Timer Setting . . . 40
9.3 PGM Options . . . 40

OTHER OPTIONS . . . 41
10.1 Telephone Line Monitoring (TLM) . . . 41
10.2 Dialing Options . . . 41
10.3 Dialing Pulse Rates . . . 41
10.4 Keypad Panic Options . . . 41
10.5 Panel Time . . . 42
10.6 Time Correction . . . 42
10.7 Tamper/Wire Fault Recognition Options . . . 43
10.8 Tamper Bypass Options . . . 43
10.9 Installer Test Mode . . . 43
10.10 Exclude Power Failure From Trouble Display . . . 44
10.11 Audible Trouble Warning . . . 44
10.12 Power Down Reset . . . 44

USER/KEYPAD FUNCTIONS . . . 45
11.1 Programming Master & User Codes . . . 45
11.2 Regular Arming . . . 45
11.3 Away Arming . . . 46
11.4 Stay Arming . . . 46
11.5 Arming/Disarming Partitions . . . 47
11.6 System Disarming . . . 48
11.7 Alarm Memory . . . 48
11.8 Keyswitch or Pushbutton Arming/Disarming . . . 48
11.9 Manual Zone Bypassing . . . 48
11.10 Bypass Recall . . . 49
11.11 Keypad Chime Zones . . . 49
11.12 Trouble Display Monitoring . . . 49
11.13 Key Access Programming . . . 51

INTRODUCTION

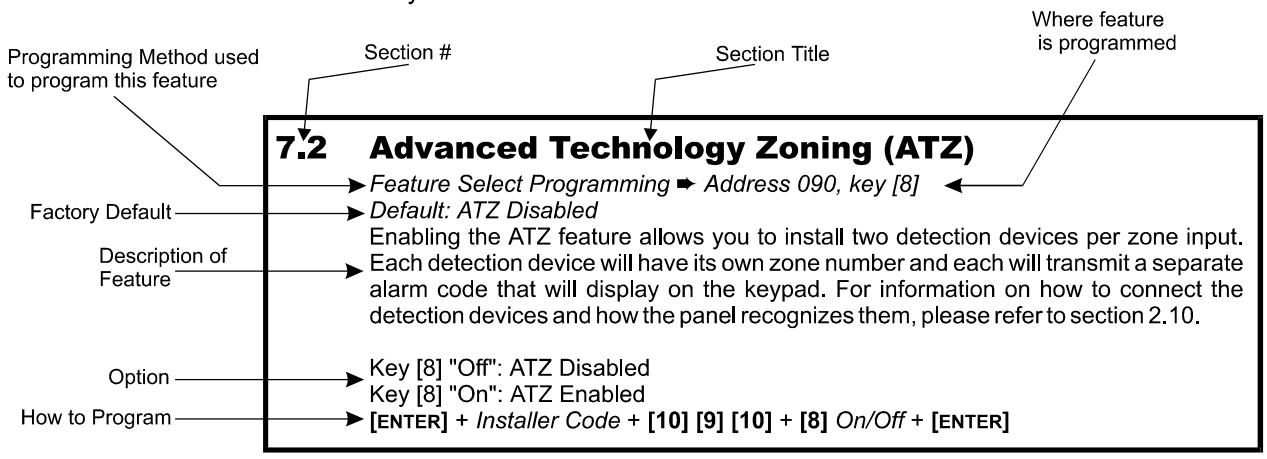
Thank you for placing your trust in Paradox and its improved Esprit 748 / 748 EXPRESS control panel. The enhanced control panel offers to you the same great features you have come to depend on with added reliability, improved lightning protection and a new innovative dialer circuit. You have selected a sophisticated, user-friendly control panel designed to meet all of your technological, performance and security requirements.

1.1 About This Manual

This manual provides all the information you will need to understand panel operation, features and functions. If you are familiar with other security control panels, we recommend that you read this manual at least once to familiarize yourself with panel features and programming. Please refer to the index for a complete list of this manual's contents.

The following terminology is used throughout this manual:
[ ] = indicates a key on the keypad
[ ] = indicates a key on the keypad must be pressed
⚠ = indicates a warning or important note
italic = indicates data that must be entered, reference to a section in the manual, or an example
"SMALL CAPS" = indicates terminals or LEDs that are located on the control panel, keypad, etc.

Most sections in this manual are layed out as follows:


Programming Method used to program this feature
Section #
Section Title
Where feature is programmed
7.2 Advanced Technology Zoning (ATZ)
Feature Select Programming ➨ Address 090, key [8]
Factory Default
Default: ATZ Disabled
Description of Feature
Enabling the ATZ feature allows you to install two detection devices per zone input. Each detection device will have its own zone number and each will transmit a separate alarm code that will display on the keypad. For information on how to connect the detection devices and how the panel recognizes them, please refer to section 2.10.
Option
Key [8] "Off": ATZ Disabled
Key [8] "On": ATZ Enabled
How to Program
[ENTER] + Installer Code + [10] [9] [10] + [8] On/Off + [ENTER]

1.2 Features

- ***Improved Lightning Protection***
- ***New and Innovative Dialer Circuit***
- 748 : 24 zones (12 on-board inputs with ATZ = 24 zones including 2 keypad zones)
  748 EXPRESS : 14 zones (12 on-board inputs + 2 keypad zones)
- Powerful 16-bit RISC processor with built in analog to digital converters
- User-friendly programming
- "False Alarm Prevention" features such as: Intellizones, Auto Zone Shutdown, Beep on Exit Delay, Programmable Delay Before Alarm Transmission, and Recent Closing Report
- 2 Flexible Partitions
- High-Speed Communication Formats
- 256 Event Buffer with time and date stamp
- 2 fully programmable outputs (PGMs)

- Upload & Download capability with Esplad Software
- Alarm Relay (Optional on 748 EXPRESS)
- 48 User Codes + 1 Master Code + 1 Installer Code
- Telephone Line Supervision
- 3 keypad activated panic alarms
- Regular Arming, "Stay" Arming, "Double Stay" Arming, Force "Away" Arming, "One- Key" Regular Arm, "One-Key" Stay Arm, "One-Key" Exit & Re-arm, "Auto Arming", Key Switch/PS1 Arming

1.3 Specifications

Battery Charger:	360mA with dynamic Battery test.
Aux. power:	Two auxiliary outputs rated at 1A each. Fuseless electronic shutdown at 1.1A, automatic restore
Bell Out:	1A, Fuseless electronic shutdown at 3A, automatic restore
AC input:	16.5 VAC, 40VA min. (recommended: 75VA), 50 - 60Hz
PGM outputs:	N.C. or N.O to ground, 50mA Max.
Serial Data Output:	(1200, 1, N) for use with accessory modules (not UL systems).

1.4 Accessories & Keypads

If you would like to obtain more information on the following keypads, security system accessories or other security products, please contact your local Paradox distributor or come and visit us at our web site http://www.paradox.ca

- Esprit 636/646 Keypads
- Esprit 642 LCD Keypads
- A wide range of analog and **digital** Motion Detectors
- Glass Break Detector
- SRI18 Programmable Output (18) Expander Module
- 708 Secondary Digital Communicator

1.5 About Paradox

Paradox Security Systems strives to design and manufacture the best security products money could buy. Our products are of the highest quality standards and most importantly meet the needs and expectations of our customers.

By refusing to settle for the limitations of existing technology, Paradox makes it clear, we are not interested in mirroring the products already on the market. Breaking down barriers to better technology is what innovation is all about.

The guiding principle behind Paradox research and development has always been to create security products that make sense. Whether the situation calls for a full range of "intelligent" and easy to use control panels, efficient peripheral security devices, or "false alarm free" motion or breaking glass detectors. We are putting all our resources into developing products that reflect our twin philosophies of innovation and user-friendliness. Now we invite you to reap the benefits.

INSTALLATION

2.1 Location & Mounting

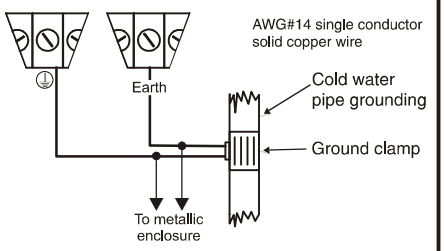
Remove the printed circuit board, mounting hardware and keypad from the packaging inside the panel box. The circuit board should not be mounted into the back of the cabinet, until all cables are pulled into the cabinet and prepared for connection. Before mounting the cabinet, push the five white nylon-mounting studs into the back of the cabinet. Select an installation site that is not easily accessible to intruders. Leave at least 2" around the panel box to permit adequate ventilation and heat dissipation. The installation site should be dry and close to an AC source, ground connection and telephone line connection.

2.2 Earth Ground

Connect the zone and dialer ground terminals from the control panel to the metallic enclosure and cold water pipe or grounding rod as per local electrical codes. *For UL installations, the metallic enclosure must be grounded to the cold water pipe or grounding rod.*

For maximum lightning protection use separate earth grounds for the zone and dialer grounds (see figure 1)!

FIGURE 1



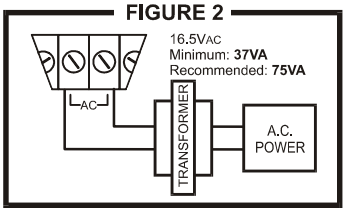
To provide maximum lightning protection we strongly recommend having separate earth grounds for the dialer and zone grounds.

2.3 Power

2.3.1 AC Power

Use a 16.5VAC (50-60Hz) transformer with a **MINIMUM 40VA** rating to provide sufficient AC power (AUX outputs = 500mA each); **RECOMMENDED 75VA** rating to provide maximum power output (AUX outputs = 1A each). Do not use any switch-controlled outlets to power the transformer. UL listed systems require the K12 model T16V40 or T16V75 transformer.

FIGURE 2

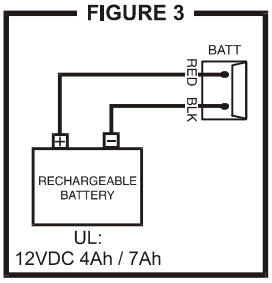


Do not connect the transformer or the back-up battery until all wiring is completed!

2.3.2 Back-up Battery

We recommend connecting a back-up battery to power the control panel, in case of power loss. UL installations require the use of a back-up battery. Use a 12VDC 4Ah / 7Ah rechargeable acid/lead or gel cell battery. Connect the back-up battery after applying the AC power. When installing the battery, verify proper polarity, as reversed connections will blow the battery fuse. Connect the "red" battery lead to the positive battery terminal, and the "black" battery lead to the negative battery terminal of the control panel. Use the Battery Charge Current Jumper on the PCB to determine the charging current of the backup battery. With the jumper ON, the charging current will be set at 350mA. With the jumper OFF, the charging current will be set at 700mA.

FIGURE 3



2.3.3 Auxiliary Power Terminals

The 748 has two auxiliary outputs each of which can provide a maximum of 1A 12VDC with a 75VA transformer and 500mA with a 40VA transformer (250mA 12VDC for 24hr standby on UL installations). You can use the auxiliary power supply to power the motion detectors,

keypads and other accessories in your security system. Their combined current consumption (see Table 1) on each auxiliary output should not exceed 1A. The auxiliary supply is microprocessor-protected against current overload and automatically shuts down if the current exceeds 1.1A. Auxiliary power will resume once the overload condition has restored and within 1-60 seconds after performing the dynamic battery test (see below).

Table 1 - Current Consumption

Motion Detectors *(see detector instructions for details)*	10-50mA typ.	636/646 Keypads	15mA DC typ. 30mA DC max.
708 Comm. Module	35mA DC typ. 75mA DC max.	642 LCD Keypads	40mA DC typ. 55mA DC max.
SRI-18	46mA DC typ 135mA DC max.		

2.3.4 Battery Test

The control panel conducts a dynamic battery test under load every 60 seconds. If the battery is disconnected, or its capacity is too low, the [1] key in the trouble display mode will be on. Key [1] also comes "on" if the battery voltage drops to 10.5 volts or less when the control panel is running on the back-up battery (no AC). At 8.5 volts, the panel shuts down and all outputs close.

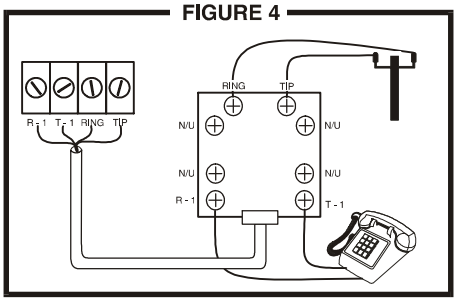
2.3.5 Keypad Function Test

We recommend conducting a "power-up" test on keypads installed far from the control panel. To do so temporarily connect the keypads near the control panel and connect the transformer. After 10 seconds, begin entering random commands on the keypad and verify that the keypad "beeps" in response to these commands. Then open a zone to ensure that the keypad and the control panel are responding to these signals. If the keypad does not respond and indicator lights do not illuminate, verify that approximately 16VAC is present at the "AC" terminals. If AC is present, check the keypad wiring and verify there isn't a short between the "black" and "red" keypad wires. If the keypad does not respond, please contact your local Paradox Distributor.

2.4 Telephone Line Connection

Connect the incoming telephone company wires into the TIP and RING connections of the control panel. Then run the wires from T-1 and R-1 to the telephone system as shown in figure 4.

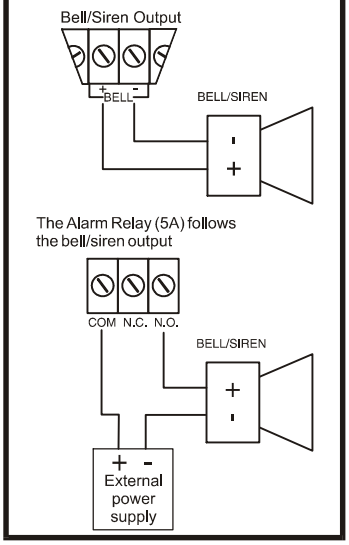
FIGURE 4



2.5 Bell/Siren Output

The BELL+ and BELL- terminals power bells and/or other warning devices requiring a steady voltage output during an alarm. The bell output supplies 12VDC upon alarm and can support two 20-watt or two 30-watt sirens. The bell output is microprocessor-controlled and will automatically shut down if the current exceeds 3A. If the load on the BELL terminals returns to normal (?3A), the control panel will re-instate power to the BELL terminals. When connecting sirens (speakers with built-in siren drivers) please verify correct polarity. Connect the positive lead to the BELL+ terminal and the negative lead to the BELL- terminal of the control panel as shown in figure 5. The Alarm Relay (optional), which is rated at 5A, can also be used to power bells and/or other warning devices requiring a steady voltage output during an alarm (see figure 5). The Alarm Relay is activated (toggles to opposite state) whenever the local bell/siren output is activated.

FIGURE 5

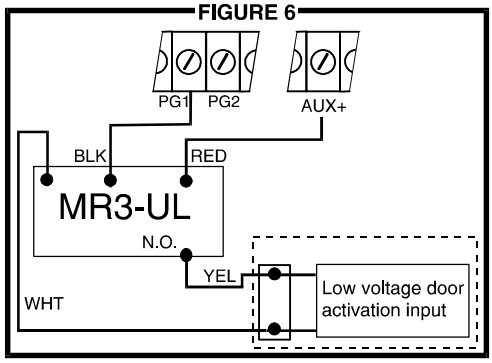


If the Bell/Siren output is not being used when connecting a bell or siren to an optional relay output, the [4] trouble indicator (see section 11.12.3) will always be on. To avoid this, connect a 1K? resistor across the bell output.

2.6 Programmable Outputs (PGM)

The Esprit "Plus" control panels include two fully programmable output (PGM). When a specific event or condition occurs in the system, a PGM can be used to reset smoke detectors, activate strobe lights, open/close garage doors and much more. The PGMs provide a maximum 50mA output. If the current draw on a PGM output is to exceed 50mA we recommend the use of a relay as show in figure 6. The PGMs can be programmed to toggle on and off from more than a thousand different events. For example, PGM1 can open and close an automatic garage door by pressing keys [1] and [2] simultaneously on the keypad. For details on how to program the PGMs, refer to section 9.

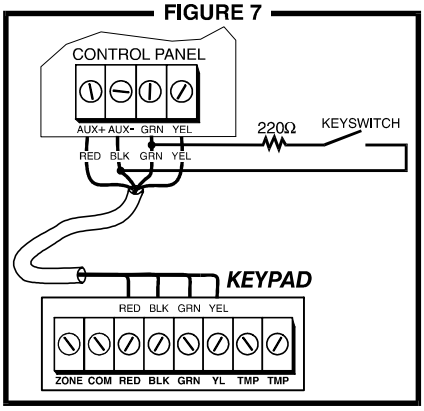
FIGURE 6



2.7 Keypad & Keyswitch Connections

Connect the four keypad connections labeled RED, BLACK, GREEN and YELLOW to the corresponding colour terminals on the control panel as indicated in figure 7. Note, on some keypads you may have to remove the back panel to make the connections. Connect the keyswitch to the "GRN" and "BLK" terminals of the control panel as shown in figure 7. To enable this function please refer to sections 8.5 and 11.8 for more information on keyswitches.

FIGURE 7



2.8 Keypad Zone Connections

Each keypad comes with one input terminal, allowing you to connect one detector or door contact directly to the keypad.

Example: A door contact located at the entry point of an establishment can be wired directly to the input terminal of the entry point keypad instead of wiring the door contact all the way to the control panel.

If a keypad has the ATZ (zone doubling) feature, two detection devices can be connected to one input terminal. Each device will be assigned a zone (see table below) and each will transmit a separate alarm code, therefore, capable of adding one or two zones to your security system. Regardless of the number of keypads in the system, the control panel supports a maximum of two keypad zones.

Example 1: A security installation is comprised of five keypads. Of these five keypads only two can have their zone input terminals enabled (see figure 9). The other three keypads must have their zone input terminals disabled as described below.

Example 2: A security installation is comprised of three 636 keypads and two 642 LCD keypads. You can enable the ATZ (Zone Doubling) feature on one of the 642 keypads, providing you with 2 zones on one keypad input terminal (see Figure 10). The remaining four keypads must have their input terminals disabled as described below.

Note if using two keypad zones, one keypad must be defined as keypad zone 1 while the other must be defined as keypad zone 2. Unless you are using an LCD keypad with the ATZ (zone doubling) feature enabled, in which case the LCD will automatically define the keypad zones. The control panel will recognize these added zones as shown in the table below.

Disabling 636/646 Keypad Zones:
If the keypad zone input terminal is not being used, disable it by shorting the blue zone wire with the black COM wire of the keypad.

Disabling 642 Keypad Zones:
If the keypad zone input terminal is not being used, disable it by shorting the ZONE and COM terminals of the keypad with a 1K? resistor.

Keypad Zone Recognition

If using an LED keypad simply set the Zone Select Jumper at the back of the keypad:
Zone Select Jumper "OFF" = Keypad Zone 1
Zone Select Jumper "ON" = Keypad Zone 2
Note: If the zone select jumper is changed, the control panel will only recognize the change when the keypad is disconnected and re-connected.

If using an LCD keypad with ATZ disabled, program the keypad definition as follows:
Keypad Programming Mode, option [2] (Keypad Options); Key [3] OFF = Keypad Zone 1
Keypad Programming Mode, option [2] (Keypad Options); Key [3] ON = Keypad Zone 2

The control panel will display open keypad zones as follows:

748 and 748 EXPRESS
Kpd Zone 1 = Zone [13]
Kpd Zone 2 = Zone [14]

Note: When the ATZ feature is enabled in the control panel, it will not be able to distinguish between zone 13 and keypad zone 1 and between zone 14 and keypad zone 2 (see section 2.10)

Once the keypad zones have been defined you must enable "Keypad Zone Supervision" (see section 7.13 & 7.14) in the control panel. Figures 8 and 9 demonstrate typical keypad zone input installations.

Figure 8

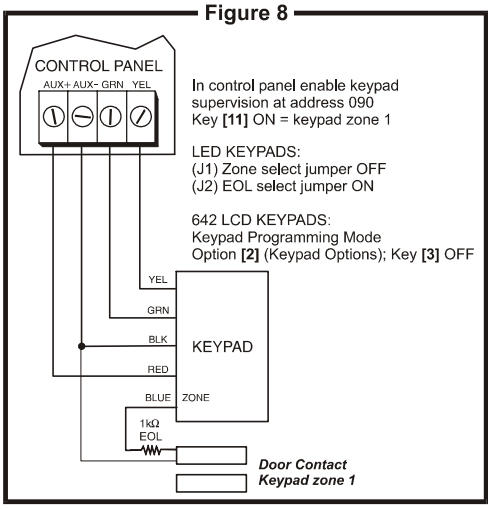


Figure 9

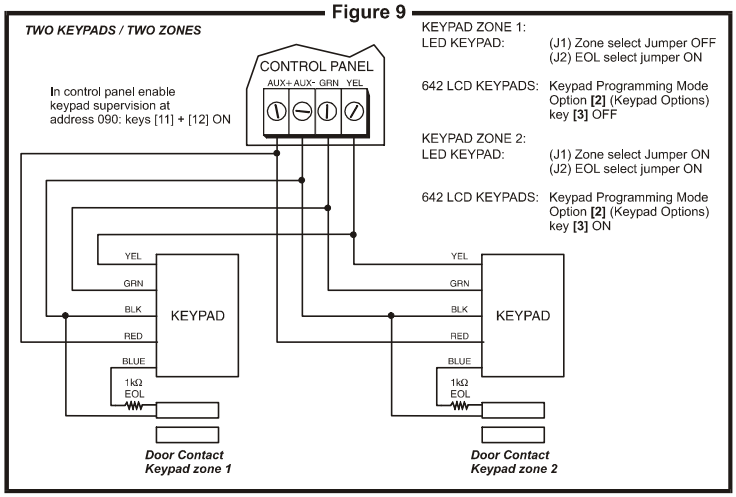
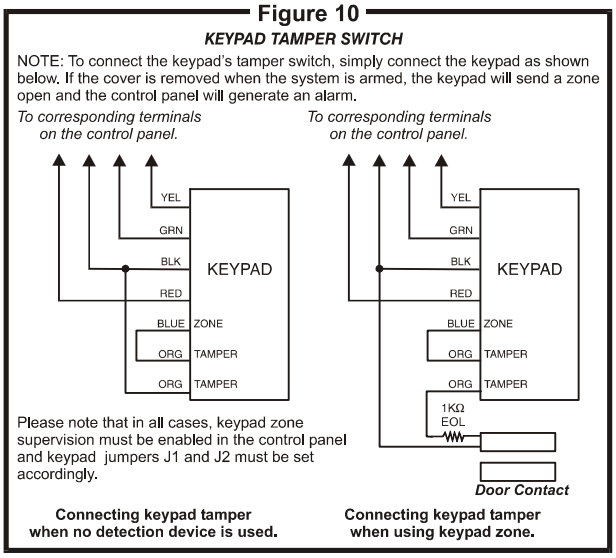

TWO KEYPADS / TWO ZONES
CONTROL PANEL
AUX+ AUX- GRN YEL
In control panel enable keypad supervision at address 090: keys [11] + [12] ON
KEYPAD ZONE 1:
LED KEYPAD: (J1) Zone select Jumper OFF (J2) EOL select jumper ON
642 LCD KEYPADS: Keypad Programming Mode Option [2] (Keypad Options) key [3] OFF
KEYPAD ZONE 2:
LED KEYPAD: (J1) Zone select Jumper ON (J2) EOL select jumper ON
642 LCD KEYPADS: Keypad Programming Mode Option [2] (Keypad Options) key [3] ON
YEL
GRN
BLK
RED
BLUE
KEYPAD
1kΩ EOL
Door Contact
Keypad zone 1
Door Contact
Keypad zone 2

Figure 10


KEYPAD TAMPER SWITCH
NOTE: To connect the keypad's tamper switch, simply connect the keypad as shown below. If the cover is removed when the system is armed, the keypad will send a zone open and the control panel will generate an alarm.
To corresponding terminals on the control panel.
To corresponding terminals on the control panel.
YEL
GRN
BLK
RED
BLUE
ZONE
ORG
TAMPER
KEYPAD
1KΩ EOL
Door Contact
Please note that in all cases, keypad zone supervision must be enabled in the control panel and keypad jumpers J1 and J2 must be set accordingly.
Connecting keypad tamper when no detection device is used.
Connecting keypad tamper when using keypad zone.

2.9 Single Zone Input Terminal Connections

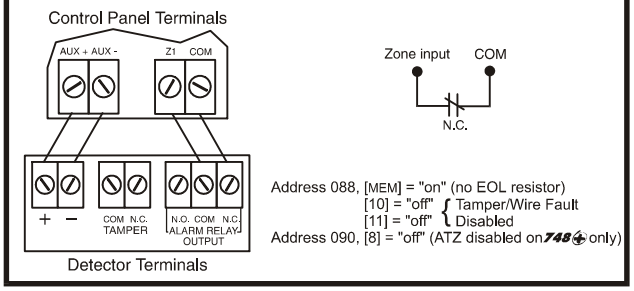
The system hardware recognizes the following single zone input terminal connections. For more information on programming the options mentioned below refer to *ZONE DEFINITIONS* in section 7.

2.9.1 N.C. Contacts, Without EOL Resistor

If your security installation does not require

tamper or wire fault detection, connect the detection devices and program the control panel as shown in figure 11. This setup will communicate an open or closed zone to the control panel, displaying open zones on the keypad. Do not use devices with normally open contacts in this setup, as this will cause the control panel to remain in alarm.

FIGURE 11


Control Panel Terminals
AUX + AUX -
Z1 COM
+ –
COM N.C. TAMPER
N.O. COM N.C. ALARM RELAY OUTPUT
Detector Terminals
Zone input COM
N.C.
Address 088, [MEM] = "on" (no EOL resistor)
[10] = "off" { Tamper/Wire Fault
[11] = "off" { Disabled
Address 090, [8] = "off" (ATZ disabled on 748 only)

2.9.2 N.O. and N.C. Contacts, With EOL Resistor (UL)

If your security installation does not require tamper or wire fault recognition but some detection devices will use normally open contacts. Connect all detection devices using a 1K? end of line (EOL) resistor and program the control panel as shown in figures 12 and 13. This setup will communicate an open or closed zone to the control panel, displaying open zones on the keypad.

FIGURE 12

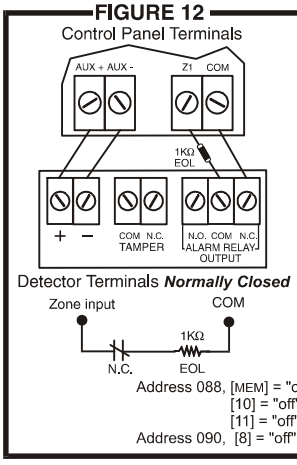
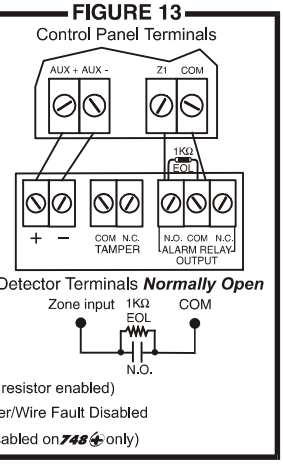


FIGURE 13

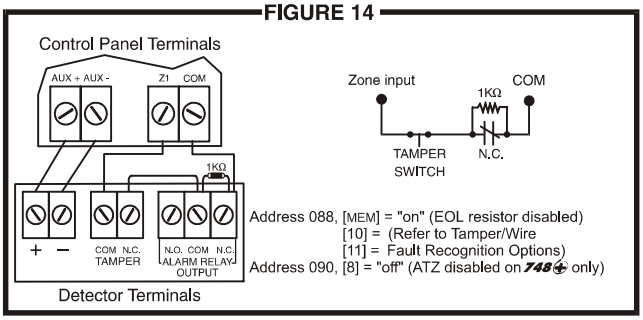


Address 088, [MEM] = "off" (EOL resistor enabled)
[10] = "off" { Tamper/Wire Fault Disabled
[11] = "off" {
Address 090, [8] = "off" (ATZ disabled on 748 only)

2.9.3 N.C. Contacts, Without EOL Resistor, With Tamper Recognition

If your security installation requires tamper recognition, all detection devices must use normally closed contacts. Connect the devices and program the control panel as shown in figure 14. This setup will communicate an open or closed zone to the control panel, displaying open zones on the keypad. The control panel will also communicate any detected tampers (cuts) as per *Tamper/Wire Fault Recognition Options* (see section 10.7).

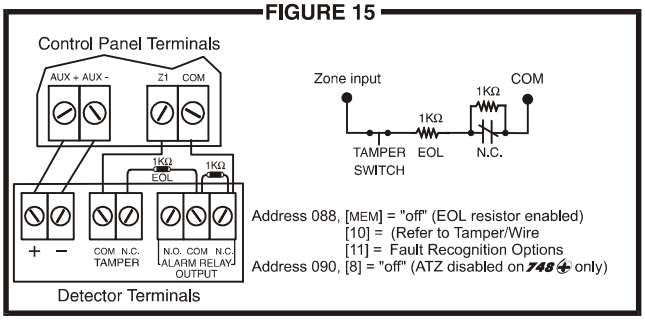
FIGURE 14



2.9.4 N.C. Contacts, With EOL Resistor, With Tamper and Wire Fault Recognition (UL)

If your security installation requires tamper (cut) and wire fault (short) recognition, all detection devices must use normally closed contacts. Connect the devices and program the control panel as shown in figure 15. This setup will communicate an open or closed zone to the control panel, displaying open zones on the keypad. The control panel will also communicate any detected tampers (cuts) and/or wire faults (short) as per *Tamper/Wire Fault Recognition Options* (see section 10.7).

FIGURE 15



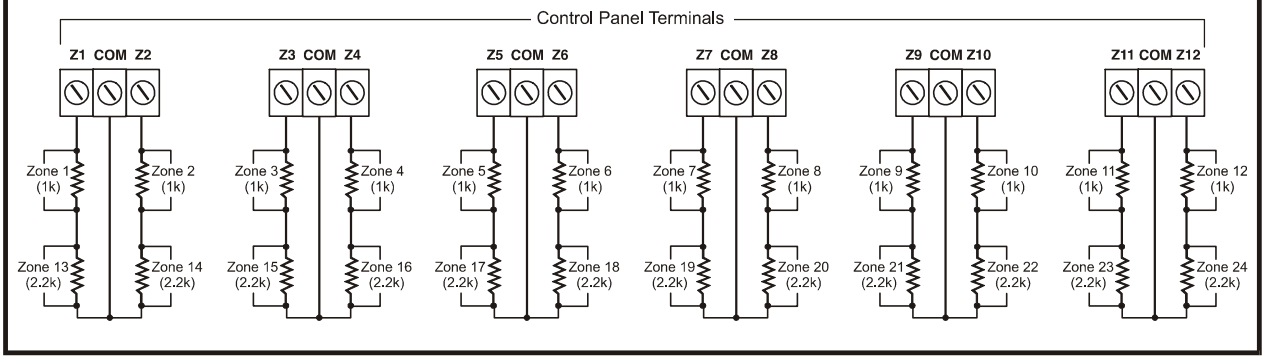
2.10 Advanced Technology Zone (ATZ) Connections

This feature is not available on the 748 EXPRESS control panel.

Enabling the ATZ feature (see section 7.2) allows you install two detection devices per input terminal, therefore, doubling zone capacity of the control panel. Advanced Technology Zoning is a software-oriented feature, there is no need for extra modules, simply install the devices as shown in figures 17 to 19. The control panel will recognize the installed devices as shown in figure 16. The extra zones function exactly like any other zone displaying zone status on the keypad and sending separate alarm codes for each zone. For more information on programming the options mentioned in the following sections refer to *ZONE DEFINITIONS* in section 7.

FIGURE 16

Zone Recognition for 748 control panel with ATZ enabled

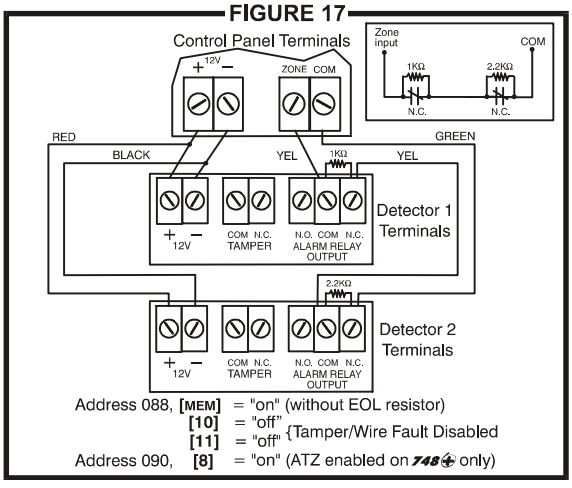


When ATZ is enabled, keypad zones are recognized as zones 13 and 14. This means that the control panel will not be able to distinguish between zone 13 and keypad zone 1 and between zone 14 and keypad zone 2.

2.10.1 N.C. Contacts, Without EOL Resistor

If your security installation does not require tamper or wire fault recognition but you are using the ATZ feature, connect the detection devices and program the control panel as shown in figure 17. Do not use devices with normally open contacts, as this will cause the system to remain in alarm. This setup will communicate the status of each device to the control panel (see figure 16), displaying open zones on the keypad.

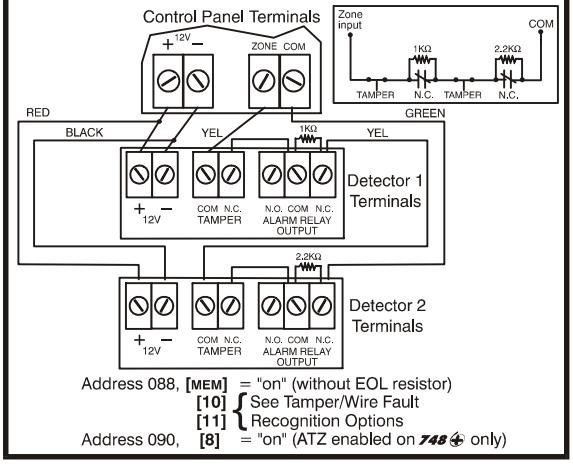
FIGURE 17



2.10.2 N.C. Contacts, Without EOL Resistor, With Tamper Recognition

If your security installation requires tamper recognition and you are using the ATZ feature, connect the detection devices and program the control panel as shown in figure 18. Do not use devices with normally open contacts, as this will cause the zone to remain open. This setup will communicate the status of each zone to the control panel (see figure 16), displaying open zones on the keypad. The control panel will also communicate any detected tampers (cuts) on the system as per *Tamper/Wire Fault Recognition Options* (see section 10.7).

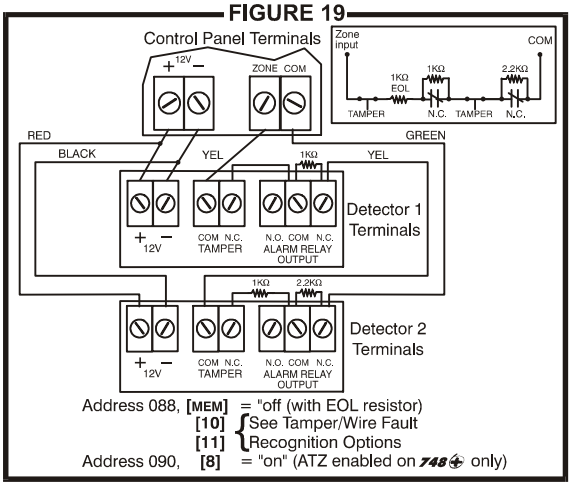
FIGURE 18



2.10.3 N.C. Contacts, With EOL Resistor, With Tamper & Wire Fault Recognition (UL)

If your system requires tamper (cut) and wire fault (short) recognition, connect two detection devices to one input terminal with a 1K? end of line (EOL) resistor and program the control panel as shown in figure 19. Do not use devices with normally open contacts, this will cause the zone to remain open. This setup will communicate the status of each zone to the control panel (see figure 16), displaying open zones on the keypad. Any tampers (cuts) and/or wire fault (shorts) detected on the system are communicated as per *Tamper/Wire Fault Recognition Options* (see section 10.7).

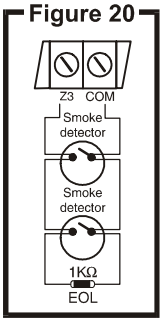
FIGURE 19



2.11 Fire Circuit

If your security installation requires the use of smoke detectors, define zone 3 as a "24-hour" fire zone; please refer to section 7.5.

Figure 20



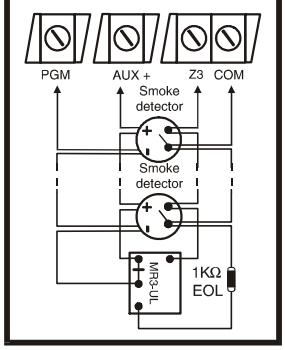
2.11.1 Standard Installation

Connect the smoke detectors to zone 3 as shown in figure 20. Note that a fire zone must use a 1K? EOL resistor. If there is a line short or if the smoke detector becomes active, whether the system is armed or disarmed, the control panel will generate an alarm (see Fire Alarm Output figure on page 30). If the line is "open", the control panel will send a "fire loop" trouble report to the central station and trouble indicator, key [11], will appear in the keypad's trouble display.

2.11.2 UL Installation

For UL installations, use a 4-wire, latching, smoke detector (UL - Falcon Model 5454). To supervise the power supply, install an "end of line" relay (Model MR3). Connect the smoke detectors and relay as shown in figure 21. In the event power is interrupted the relay will cause a FIRE TROUBLE report to be generated (see section 7.5).

Figure 21



To reset (unlatch) the smoke detectors after an alarm, momentarily interrupt power to the detectors. To do so, verify that the negative (-) of the smoke detectors is connected to a PGM. Set the PGM for "Timed N.C." (normally closed), and program the PGM to "open" when any two keys on the keypad are pressed simultaneously. For more information on programming the PGM refer to section 9.

EXAMPLE: To program PGM1 to conduct a smoke detector reset when the [CLEAR] and [ENTER] keys are pressed at the same time.

Address 039 = [BYP] [2ND]
Address 040 = [5] [10]
Address 042 = [2ND] [6]
Address 056 = [10] [10] [4]

It is recommended to connect all 4-wire smoke detectors using a daisy chain configuration.

2.12 Serial Output Connector

The four pin *Serial Output Connector* is used to connect additional devices such as the 708DVACS communicator, the Esprint printing module and the SRI-18 PGM Expander Module to the control panel. For serial output connector specifications refer to section 1.3.

ACCESS CODES

3.1 Installer Code

Streamline - Section 00 ✝ Hexa Programming - Addresses 000-002

Default: 748 = 484848 / 748 EXPRESS = 747474

Only the installer code allows you to program all control panel settings, except the Master and User codes. To program any setting in the control panel you must enter the programming mode by pressing the **[ENTER]** key followed by the installer code. The installer code contains six digits and each digit can be any value from 0 to 9. Although the control panel can accept 4-digit codes, when programming the installer code, always enter six digits. To change the installer code press:

[ENTER] + *Installer Code* + **[10] [10] [10]** + *First 2 digits* + **[10] [10] [1]** + *Next 2 digits* + **[10] [10] [2]** + *Final 2 digits* + **[ENTER]**

3.2 Master & User Codes

Default Master Code: 474747

You can not use the installer code to program the master and user codes. Only the master and user 1 codes can program these access codes. (See section 11.1)

3.3 User / Access Code Length

Feature Select Programming ✝ Address 088, key [9]

Default: 6-digit Access Codes

When programming user codes an option for either 4-digit or 6-digit access codes can be programmed. When the 4-digit option is selected, entering a 4-digit code will allow the person access. Using the 6-digit option, entering 6 digits is required to allow access.

Key [9] "Off": 6-digit Access Codes
Key [9] "On": 4-digit Access Codes
[ENTER] + *Installer Code* + **[10] [8] [8]** + **[9]** *On/Off* + **[ENTER]** *twice*

3.4 Duress

Feature Select Programming ✝ Address 090, key [10]

Default: Duress Disabled

When unwillingly forced to disarm a system, a User can enter the User Code #48 instead of their usual code. This code will disarm the system and send a silent alert (Duress Code) to the Central.

Key [10] "Off": Duress Disabled
Key [10] "On": Duress Enabled
[ENTER] + *Installer Code* + **[10] [9] [10]** + **[10]** *On/Off* + **[ENTER]** *twice*

3.5 Installer Lock

Decimal Programming ✝ Address 058

Default: Address Empty

Program 147 into address 058 to lock all programming. Hence, performing a hardware reset (see section 10.12) will not affect the current settings. To remove the installer lock, enter any value besides 147.

[ENTER] + *Installer Code* + **[10] [5] [8]** + **[1] [4] [7]** + **[ENTER]**

PROGRAMMING METHODS

The *748 & 748 EXPRESS* Control Panels can be programmed using either the keypad or the Esplad Software. We highly recommend programming the control panels using the Esplad Software, as it simplifies the process and reduces the potential of data entry errors. You can also program the control panels manually by using a keypad.

4.1 Esplad Software

With the Esplad Software, you can program the 748 family of control panels remotely via modem or locally using an ADP-1 adapter. The advanced Esplad software can execute fast uploads or downloads and provides many powerful features. These include a comprehensive "monitoring" mode to oversee all panel activity, a "scheduler" to initiate pre-programmed tasks at set intervals, and a "batch" mode to carry out pre-programmed tasks following a call from the control panel. Using Esplad there is no limit to the number of account files or panel defaults created and you can assign thousands of programming combinations to the PGM outputs. Esplad can also be converted to the language of your choice. Contact your local Paradox Distributor for your **FREE** copy of the Esplad software.

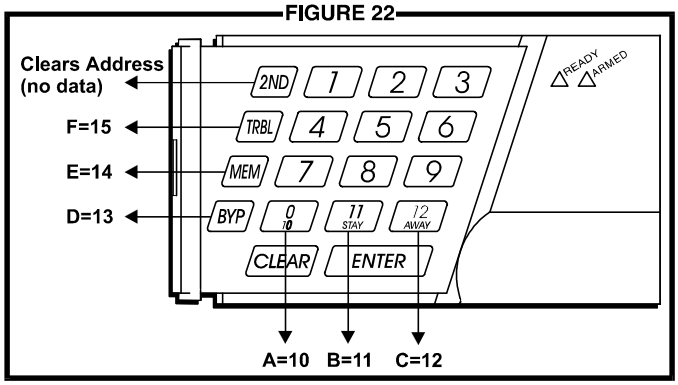
4.2 Keypad

When programming, use the supplied "*Programming Guide*" to keep track of which addresses were programmed and how. Before you begin programming the control panel, we recommend you read sections 5 through 11 of this manual in order to acquire a good understanding of the control panel and its many features. When programming with the keypad, certain addresses are programmed using different methods. These methods are described in detail below. Each section in this manual will reference the appropriate programming method.

4.2.1 Hexa Programming

Addresses 000 to 043 and 300 to 527 are programmed using the Hexa Programming method. In this mode, you can enter any hexa-digit from 0-F where keys [1] to [9] represent digits 1 to 9 respectively; the other keys represent hexa-digits A to F as shown in figure 22. To program using the Hexa Programming method:

FIGURE 22

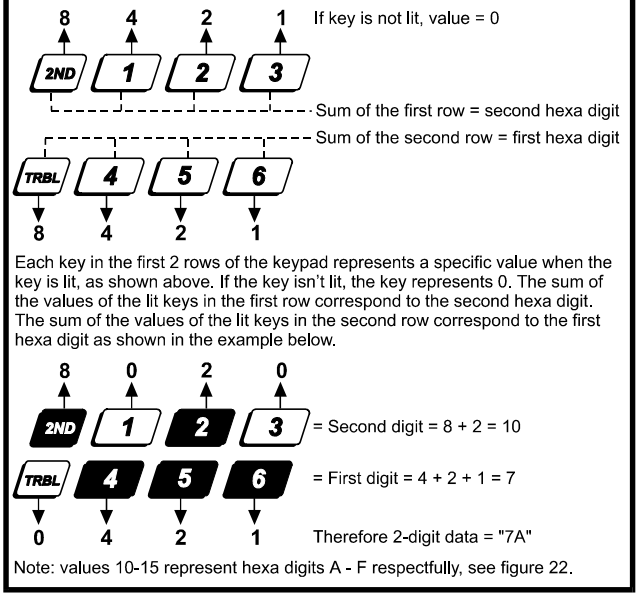


1) Press **[ENTER]** + ***Installer Code***
2) The **[ENTER]** key will flash indicating you are in programming mode
3) Enter the desired ***3-digit address***
4) The keypad will display the 2-digit data currently saved at this address as described in figure 23
5) Enter ***2-digit data***; after entering data you do not need to press enter, the software will automatically save the data into the selected address
6) Return to **step 2** to continue programming or press **[CLEAR]** to exit programming mode

FIGURE 23

HEXA DIGIT DATA DISPLAY FOR LED KEYPADS

Note: LCD keypads will display current data on the screen.


8 4 2 1
If key is not lit, value = 0
2ND 1 2 3
Sum of the first row = second hexa digit
Sum of the second row = first hexa digit
TRBL 4 5 6
8 4 2 1
Each key in the first 2 rows of the keypad represents a specific value when the key is lit, as shown above. If the key isn't lit, the key represents 0. The sum of the values of the lit keys in the first row correspond to the second hexa digit. The sum of the values of the lit keys in the second row correspond to the first hexa digit as shown in the example below.
8 0 2 0
2ND 1 2 3
= Second digit = 8 + 2 = 10
TRBL 4 5 6
= First digit = 4 + 2 + 1 = 7
0 4 2 1
Therefore 2-digit data = "7A"

Note: values 10-15 represent hexa digits A - F respectfully, see figure 22.

4.2.2 Hexa Streamlined Section Programming

This is an alternate method to Hexa Programming. The addresses (000-043 and 300-527) programmed in the Hexa Programming method are grouped into 67 sections where each section contains four addresses (i.e. section 00 = addresses 000-003). Using this method allows you to program 8 digits (4 addresses) without having to exit and re-enter addresses. When entering the final digit, the software will automatically advance to the next section.

> *Example: If you complete the "Programming Guide" with the desired data, you can program the 68 sections by entering all digits without pressing [ENTER] or entering any other addresses. This greatly reduces programming time.*

Note: the keypad will not display the current data in the Hexa Streamlined Programming method. To program using the Hexa Streamlined Section method:

1) Press **[ENTER] + *Installer code* + [7]**
2) The [ENTER] and [2ND] keys will flash to indicate you are in streamlined programming mode
3) Enter ***2-digit section*** (00-67)
4) The [ENTER] key will remain on and the [2ND] key will turn off
5) Enter ***8-digit data*** to program the section
6) The keypad will "beep" to indicate that the section has been programmed, data is saved and the software has advanced to the next section
7) Return to **step 4** to continue programming or press **[CLEAR]** to exit programming mode

4.2.3 Decimal Programming

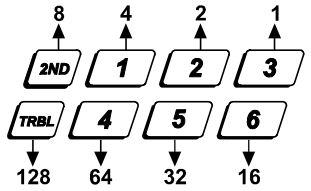
Addresses 044 to 061 are programmed using the Decimal Programming method. Values entered must contain three digits from 000 to 255 (where the [10] key = 0). To program using the Decimal Programming method:

1) Press **[ENTER] + *Installer Code***
2) The [ENTER] key will flash to indicate you are in programming mode
3) Enter ***3-digit address*** (044-061)
4) The keypad will now display the current 3-digit data currently saved at this address as described in figure 24
5) Enter ***3-digit data*** (decimal) value; after entering data you do not need to press [ENTER], the software will automatically save the data into the selected address
6) Return to **step 2** to continue programming or press **[CLEAR]** to exit programming mode

FIGURE 24

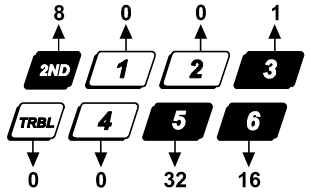
DECIMAL DISPLAY FOR LED KEYPADS

Note: LCD keypads will display current data on the screen.



Each key in the first 2 rows of the keypad represents a specific value when the key is lit, as shown above. When the key isn't lit, the key represents 0. Add the values of the lit keys to obtain the entered data value as shown in the example below.

Example



Therefore 8 + 1 + 32 + 16 = 057

4.2.4 Feature Select Programming

Addresses 062 to 126 are programmed using the Feature Select Programming method. In this method, every key in each address on the keypad represents an option or feature. Pressing a key will display it on the keypad and pressing it again will extinguish the key. The On/Off status of each key determines the selected feature. To program using the Feature Select Programming method:

1) Press **[ENTER]** + ***Installer Code***
2) The [ENTER] key will flash to indicate you are in programming mode
3) Enter ***3-digit address*** (062-126)
4) After entering the address, the keypad will display the feature selection status. The On/Off status of the keys determines the selected features as described in the "*Programming Guide*" and in the appropriate sections of this manual. Turn the keys On/Off by pressing the appropriate key until the desired options are set. Then press the **[ENTER]** key to accept, there will be a confirmation "beep" indicating the options have been accepted. The [ENTER] key will flash to indicate that the software is awaiting the next address entry
5) Return to **step 3** to continue programming or press **[CLEAR]** to exit programming mode

4.2.5 Key Access Programming

This method allows for quick programming of features without entering addresses or section numbers. The following features are programmed using the installer code as well as the master and user 1 codes.

- Installer Test Mode: see section 10.9
- Auto Arm Time: see section 8.1.1
- Answer Esploud: see section 5.6
- Call Esploud: see section 5.5
- Cancel Communication: see section 5.7
- Manual Test Report: see section 6.8
- Panel Time: see section 10.5

PANEL SETTINGS FOR ESPLOAD

5.1 Panel Answer Options

Streamline - Section 00 ↟ Hexa Programming - Address 003
Default: Answering Machine Override Disabled & Maximum 8 rings
The following two options will define how the control panels answer an incoming call from a computer using the Esplod software.

In order for the Esplod software to remotely communicate with the control panel, call the installation site twice using the Esplod Software. To do so, program the **first digit** in address 003 with any value from 1-F (see table 2 below), this value represents the delay period the control panel will wait between the first and second call. Using the Esplod software, call the installation site and on the second ring press [ENTER] on the keyboard to hang-up. After hanging up, the Esplod software will immediately call the installation site back. If the installation site is called back within the programmed delay period, the control panel will override the answering machine or service by picking-up on the first ring. To disable this option program [2ND] or [1] as the first digit in address 003.

Example: A security installation is using an answering machine set to answer after 3 rings, the first digit at address 003 has been programmed with [5] (40 sec.) and the second digit has been programmed with 8. When you call the installation site with the Esplod software the first time, wait two rings and press [ENTER] on the keyboard. The Esplod software will immediately call the installation site back. If the second call is made within 40 seconds, the panel will pick up the line on the first ring. If it takes more than 40 seconds, the panel will not answer on the first ring and the answering machine will answer after three rings.

Table 2 - Answering Machine Override Options

[2ND] or **[1]** = Answering Machine Override disabled			
[2] = 16 seconds	**[4]** = 32 seconds	**[6]** = 48 seconds	**[8]** to **[TRBL]** = 60 seconds
[3] = 24 seconds	**[5]** = 40 seconds	**[7]** = 56 seconds	

[ENTER] + *Installer Code* + **[10] [10] [3]** + *1st digit + 2nd digit (1-15 rings)* + **[ENTER]**

The **second digit** represents the number of rings the control panel will wait before picking-up the line. If the line is not answered after the number of re-programmed rings, the control panel will answer the call. Note the control panel resets the "ring" counter every 64 seconds. Therefore, if someone or an answering machine answers a call before the number of pre-programmed rings has elapsed, the control panel will keep the number of rings in memory for 64 seconds. If you hang-up and call the installation site back within 64 seconds, the control panel will continue to count the number of rings from the first call. After reaching the total number of rings, the control panel will answer the call. The number of rings can be set from 1-15 by programming the second digit at address 003 with any hexa-digit from 1-F. Program the second digit with [2ND] to disable this option.

Example: Address 003 = [2ND] [8]. Using the Esplod software, you call an installation site where there is no answering machine or service and no one is home. Since there is no one to answer the telephone call, the control panel will pick-up the line on the eighth ring. If someone happens to be home and answers the telephone, say, after three rings, the control panel will keep the three rings in memory for 64 seconds. If you hang-up and call back the installation site within 64 seconds the control panel will answer the call on

the fifth ring. If you call back after 64 seconds the "ring" counter will have been reset and the control panel will answer the call on the eighth ring.

If you program four or less rings, the control panel will always reset the counter!

5.2 Panel Identifier

Streamline - Section 01 ✝ ✝Hexa Programming - Addresses 004-005

This four-digit code identifies the control panel to the Espload software before initiating upload. Program the same 4-digit code into the control panel and the Espload software before attempting to establish communication. If the codes do not match, the control panel will not establish communication. Enter any hexa digits from 0 to F.

[ENTER] + *Installer Code* + **[10] [10] [4]** + *First 2 digits* + **[10] [10] [5]** + *Final 2 digits* + **[ENTER]**

5.3 PC Password

Streamline - Section 01 ✝ Hexa Programming - Addresses 006-007

This four-digit download password identifies the PC to the panel, before beginning the download process. Enter the same password into the Espload software and the control panel. If the passwords are not the same, Espload will not establish communication. Enter any hexa digits from 0 to F.

[ENTER] + *Installer Code* + **[10] [10] [6]** + *First 2 digits* + **[10] [10] [7]** + *Final 2 digits* + **[ENTER]**

5.4 Computer Telephone Number

Streamline Section 02 & 03 ✝ Hexa Programming - Address 008-015

The control panel will dial this telephone number when trying to initiate communication with the PC (see section 5.5 *Call Espload*). There is no default telephone number and you can enter any number from 0-9 up to a maximum of 16 digits. If you would like to enter any special keys or functions refer to table 3 in section 6.3. If the telephone number contains less than 16 digits, press the [TRBL] key to indicate the end of the telephone number.

[ENTER] + *Installer Code* + **[7]** + **[10] [2]** + *Telephone Number (if <16 digits press **[TRBL]**)* + **[ENTER]**

5.5 Call Espload

Key Access Programming ✝ key [TRBL]

The control panel will dial the telephone number entered at addresses 008-015 (see section 5.4) in order to communicate with the Espload software. The control panel and the computer will verify that the Panel Identifier and the PC Password match before establishing communication (see sections 5.2 and 5.3).

Press **[ENTER]** + *(Installer, Master, or User 1 Code)* + **[TRBL]**

5.6 Answer Espload

Key Access Programming ✝ Key [AWAY]

By entering the code sequence listed below, you can manually force the control panel to answer any incoming calls from the Espload software. This option can also be used to perform an on-site upload/download by connecting your computer directly to the control panel using an ADP-1 line adapter and manually answering Espload from the control panel. In Espload go to:

Main Menu ✝ Program Setup ✝ Modem & Printer Configuration
Set "Dialing Condition" to "Blind Dial". Program the panel telephone number in Espload and follow the instructions on the ADP-1 adapter. When the computer has dialed press:

[ENTER] + *(Installer, Master, or User 1 Code)* + **[AWAY]**

5.7 Cancel Communication

Key Access Programming ✝ key [STAY]
Use the Installer Code to cancel all communication and erase any unreported events in the buffer until the next reportable event. Use the Master or User 1 code to cancel communication attempts with Espload.

[ENTER] + *(Installer, Master & User 1 Code)* + **[STAY]**

5.8 Call Back

Feature Select Programming ✝ Address 086, key [4]
Default: Call Back Disabled
For additional security, when a PC using the Espload software attempts to communicate with the control panel, the control panel can hang-up and call the PC back in order to re-verify identification codes and re-establish communication. When the control panel answers the call, it will verify if the Panel ID and PC Passwords match and if they do, the control panel will hang-up and call the Espload software back. The Espload software will automatically go into "wait for dial tone", ready to answer when the control panel calls back. Please note the *Computer Telephone Number* (see section 5.4) must be programmed in order to use the "Call Back" feature.

Key [4] "Off": Call Back Disabled
Key [4] "On": Call Back Enabled
[ENTER] + *Installer Code* + **[10] [8] [6]** + **[4]** *On/Off* + **[ENTER]** twice

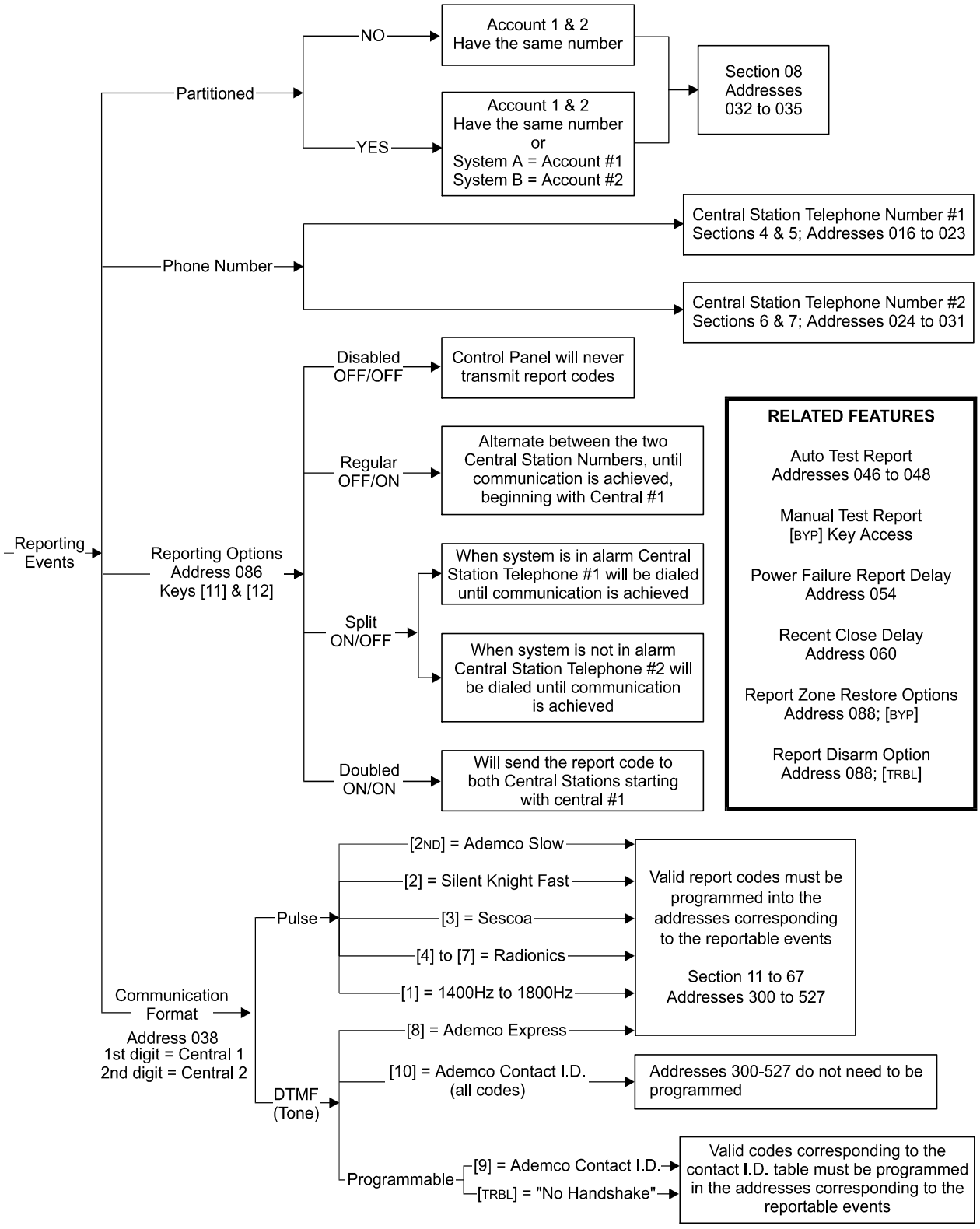
5.9 Automatic Event Buffer Transmission

Feature Select Programming ✝ Address 088, key [2ND]
Default: Automatic Event Buffer Transmission Disabled
When the event buffer reaches 50% capacity, the control panel will make two attempts to establish communication with a PC. The control panel will call the Computer Telephone Number (see section 5.4) programmed at addresses 008 to 015. The Espload software must be in "wait for dial tone" mode. When the system establishes communication, it will upload the contents of the event buffer to the Espload software. If communication is interrupted before transmission of the complete contents of the buffer, or if after two attempts, communication is not established, the system will wait until the event buffer is full before attempting to re-communicate with Espload. When the Event Buffer is full, each subsequent new event will erase the oldest event in the buffer.

Key [2ND] "Off": Automatic Event Buffer Transmission Disabled
Key [2ND] "On": Automatic Event Buffer Transmission Enabled
[ENTER] + *Installer Code* + **[10] [8] [8]** + **[2ND]** *On/Off* + **[ENTER]** *twice*

EVENT REPORTING

Figure 25 - Event Reporting


Reporting Events
Partitioned
NO
Account 1 & 2 Have the same number
YES
Account 1 & 2 Have the same number or System A = Account #1 System B = Account #2
Section 08 Addresses 032 to 035
Phone Number
Central Station Telephone Number #1 Sections 4 & 5; Addresses 016 to 023
Central Station Telephone Number #2 Sections 6 & 7; Addresses 024 to 031
Reporting Options Address 086 Keys [11] & [12]
Disabled OFF/OFF
Control Panel will never transmit report codes
Regular OFF/ON
Alternate between the two Central Station Numbers, until communication is achieved, beginning with Central #1
Split ON/OFF
When system is in alarm Central Station Telephone #1 will be dialed until communication is achieved
When system is not in alarm Central Station Telephone #2 will be dialed until communication is achieved
Doubled ON/ON
Will send the report code to both Central Stations starting with central #1
RELATED FEATURES
Auto Test Report Addresses 046 to 048
Manual Test Report [BYP] Key Access
Power Failure Report Delay Address 054
Recent Close Delay Address 060
Report Zone Restore Options Address 088; [BYP]
Report Disarm Option Address 088; [TRBL]
Communication Format
Address 038 1st digit = Central 1 2nd digit = Central 2
Pulse
[2ND] = Ademco Slow
[2] = Silent Knight Fast
[3] = Sescoa
[4] to [7] = Radionics
[1] = 1400Hz to 1800Hz
Valid report codes must be programmed into the addresses corresponding to the reportable events
Section 11 to 67 Addresses 300 to 527
DTMF (Tone)
[8] = Ademco Express
[10] = Ademco Contact I.D. (all codes)
Addresses 300-527 do not need to be programmed
Programmable
[9] = Ademco Contact I.D.
[TRBL] = "No Handshake"
Valid codes corresponding to the contact I.D. table must be programmed in the addresses corresponding to the reportable events

6.1 Reporting Options

Feature Select Programming ✝ Address 086, key [11] & [12]
Default: Reporting Disabled

When a specific event occurs in the system, the control panel will attempt to report the appropriate event code (if programmed) to the Central Station. The four available Reporting Options described in the table below, define where the event codes are reported. In order to establish communication with the Central Station the control panel will first access a telephone line and wait a maximum of 8 seconds for a dial tone. If a dial tone is recognized or if after 8 seconds there is no dial tone, the control panel will dial the appropriate Central Station Telephone Number as defined by the Reporting Options listed in the table below. If communication is established, the control panel will transmit the events in the event buffer to the Central Station. If communication fails during transmission, the control panel will dial the next central station telephone number, as defined by the reporting options listed below, and report only those events not reported during the interrupted attempt. For information on *Reporting Event Codes* see section 6.6.

[ENTER] + *Installer Code* + **[10] [8] [6]** + **[11] & [12]** *On/Off* + **[ENTER]**

Key [11]	Key [12]	Reporting Feature
Off	Off	Reporting Disabled
Off	On	Regular Reporting
On	Off	Split Reporting
On	On	Double Reporting

6.1.1 Reporting Disabled

The Control Panel will never transmit any event codes to the central station.

6.1.2 Regular Reporting

Using regular reporting the event codes are reported to the central station using either telephone number 1 or 2. The control panel will begin by dialing central station telephone number 1. If communication fails, the dialer will hang up, wait a predetermined period and dial central station telephone number 2. This sequence will repeat 4 times, switching back and forth between the 1st and 2nd number (see figure 26 on the following page) until communication is established. After eight unsuccessful attempts, the redial sequence ends and a "communicator report failure" will appear in the keypad's trouble display (key [7] "on"). When the next event occurs (reportable or non-reportable), the control panel will begin the dialing sequence again.

6.1.3 Split Reporting

When the system is **not in alarm**, the control panel will report all Event Codes to Central Station Telephone 2. If communication fails, the dialer will hang-up, wait a predetermined period and dial the number again. The control panel will dial the number eight times until communication is established (see figure 26 on the following page). After eight unsuccessful attempts, the redial sequence ends and a "communicator report failure" will appear in the keypad's trouble display (key [7] "on"). When the next event occurs (reportable or non-reportable), the control panel will begin the dialing sequence again.

When the system is in ***alarm***, the control panel will report all Event Codes to Central Station Telephone 1. Any ongoing communication (upload/download or reporting to Telephone 2) will stop immediately and the panel will dial Telephone 1. If communication fails, the dialer will hang-up, wait a predetermined period and dial the number again. The control panel will dial the number eight times until communication is established (see figure 26 below). After eight unsuccessful attempts, the redial sequence ends and a "communicator report failure" will

appear in the keypad's trouble display (key [7] "on"). When the next event occurs (reportable or non-reportable), the control panel will begin the dialing sequence again.

6.1.4 Double Reporting

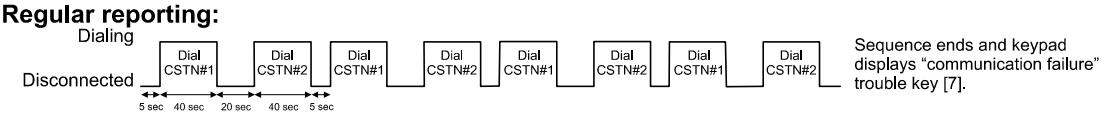
In double reporting, the control panel will report each event code to both central station telephone numbers. The control panel will begin by attempting communication with central station telephone 1 and if communication fails, the dialer will hang-up, wait a predetermined period and dial the number again. The control panel will dial the number eight times until communication is established (see figure 26). After eight unsuccessful attempts, the redial sequence ends and a "communicator report failure" will appear in the keypad's trouble display (key [7] "on"). If communication has been established and the event codes transmitted or if after eight attempts communication has not been established, the control panel will report the same Event Codes to Central Station Telephone 2.

FIGURE 26

REPORTING OPTIONS

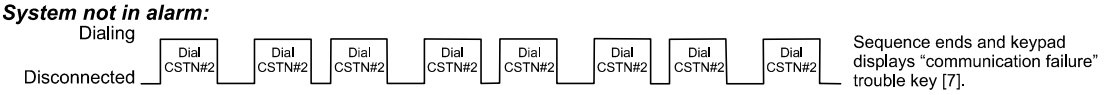
CSTN = Central Station Telephone Number
The following set of timing diagrams represents the dialing sequence of each of the three reporting options.

Regular reporting:



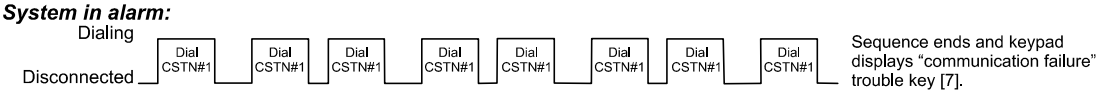
Split reporting: All codes are sent to CSTN#2 except when the system is in alarm, codes will be sent to CSTN#1.

System not in alarm:

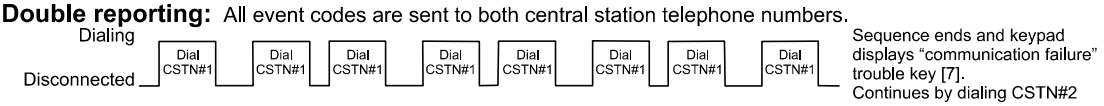


OR

System in alarm:

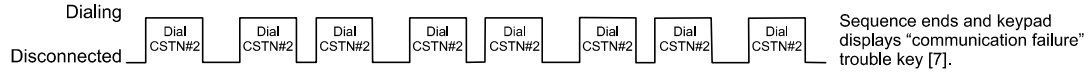


Double reporting: All event codes are sent to both central station telephone numbers.



AND

Once communication is established and the events have been uploaded the control panel will begin dialing CSTN#2.



6.2 Central Station Telephone Number 1

Streamline - Section 04 & 05 ✝ Hexa Programming - Addresses 016-023

The control panel will dial the programmed telephone number when reporting an event code to the central station computer (see *Reporting Options* in section 6.1). For example, if the alarm system is armed and a zone with a motion detector opens, the control panel may dial the telephone number in order to send the programmed event code to the central station computer. There is no default telephone number and you can enter any number from 0-9 up to a maximum of 16 digits. If you would like to enter any special keys or functions, refer to table 3 below. If the telephone number contains less than 16 digits, press the [TRBL] key to indicate the end of the telephone number.

[ENTER] + *Installer Code* + **[7]** + **[10] [4]** + *Telephone Number* + **[ENTER] OR [TRBL]** *if number is <16 digits*

6.3 Central Station Telephone Number 2

Streamline - Section 06 & 07 ✟ Hexa Programming - Addresses 024-031

The control panel can communicate with two central station numbers. The control panel may at times dial the second number depending on the selected *Reporting Options* see section 6.1. If the central station does not have a second number, you must enter the same number as the first. There is no default telephone number and you can enter any number from 0-9 up to a maximum of 16 digits. If you would like to enter any special keys or functions refer to table 3 below. If the telephone number contains less than 16 digits, press the [TRBL] key to indicate the end of the telephone number.

[ENTER] + *Installer Code* + **[7]** + **[10] [6]** + *Telephone Number* + **[ENTER] OR [TRBL]** *if number is <16 digits*

Table 3 - Telephone number Special Instructions

Enter special instructions in the telephone numbers using these keys:

[10]	= the number "0"	**[BYP]**	= switch from pulse to tone while dialing
[11]	= *	**[MEM]**	= pause 4 seconds
[12]	= #	**[TRBL]**	= end of telephone number

Both Central Station Telephone Numbers must be programmed in order for event reporting to function properly!

6.4 System Account Codes

Streamline - Section 08 ✟ Hexa Programming - Addresses 032-035

All report codes are preceded by a 3 or 4-digit system account code to ensure correct identification to the central station, identifying from which security system the event originated. For example, if a zone opens, the control panel will first send the account code followed by the appropriate report code. In a partitioned system, the control panel can send a separate account code for each system. This will identify to the central station from which partition the report code originated. To do so, program a different number into each account code. Where account code #1 will represent “System A" and account code #2 will represent “System B".

If partitioning is disabled, program the same value for both account numbers.

There are no defaults and you can enter any hexa digit from 0 to F. Please note if required, system account codes can have 3 digits. To do so, press the [2ND] key followed by the 3-digit account number.

[ENTER] + *Installer Code* + **[7]** + **[10] [8]** + *4-digit Account Code #1* + *4-digit Account Code #2* + **[ENTER]**

[ENTER] + *Installer Code* + **[7]** + **[10] [8]** + **[2ND]** + *3-digit Account Code #1* + **[2ND]** *3-digit Account Code #2* + **[ENTER]**

6.5 Communicator Formats

Streamline - Section 09 ✟ Hexa Programming - Address 038

Default: Ademco Slow for both numbers

The following option will determine which format the control panel will use to communicate with the Central Station. You can select a different communicator format for each *Central Station Telephone Number*. Using table 4 below, select the appropriate communication format. The first digit represents the Communication Format for Central Station Telephone Number 1 and the second

digit represents the Communication Format for Central Station Telephone Number 2. Below you will find a brief description of all available Communicator Formats.

[ENTER] + *Installer Code* + **[10] [3] [8]** + *First digit* = (Central Station Telephone #1) + *Second digit* = (Central Station Telephone #2) + **[ENTER]**

KEY — **Table 4 - Communicator Formats**

[2ND]	= **ADEMCO** slow (1400Hz, 1900Hz, 10bps)	**[6]**	= **RADIONICS** with PARITY (1400Hz, 40bps)
[1]	= (1400Hz, 1800Hz, 10bps)	**[7]**	= **RADIONICS** with PARITY (2300Hz, 40bps)
[2]	= **SILENT KNIGHT** fast (1400Hz, 1900Hz, 20bps)	**[8]**	= ★ **ADEMCO** express
[3]	= **SESCOA** (2300Hz, 1800Hz, 20bps)	**[9]**	= ★ **ADEMCO** contact ID (programmable codes)
[4]	= **RADIONICS** (40bps with 1400Hz handshake)	**[10]**	= ★ **ADEMCO** contact ID (all codes)
[5]	= **RADIONICS** (40bps with 2300Hz handshake)	**[TRBL]**	= ★ **DTMF -** no handshake (personal dialing)
			★ = 4-digit account codes only

6.5.1 Ademco Contact ID (all codes)

Please note that this format must use a 4-digit system account code (see section 6.4). Ademco Contact ID is a fast communicator format that uses tone transmission instead of pulse transmission. This communicator format also uses a pre-defined list of industry standard messages and event codes that should suit most of your basic installation needs. Using the "All Codes" format, the control panel will automatically generate the Contact ID event codes (see table 5 below) for every event in addresses 300 to 527. Therefore, you do not need to program addresses 300 to 527.

Table 5 - Contact ID Event Codes

System Event	*Event Code Addresses*	*Contact ID Message*	*Contact ID Code #*
Alarms / Restores	400 to 447	Burglary Zone #	130
Alarm / Restore on Zone 3 if “24hr.”	402, 426	Fire Alarm	110
Arm / Disarm	301 to 349 / 351 to 399	Open/Close By User #	401
Zone Shutdown	448 to 471	Burglary Bypass #	573
Zone Tamper	472 to 495	Sensor Tamper	383
Zone Tamper Reset	510	Sensor Tamper	383
Auxiliary Power Trouble	496 & 504	System Trouble	300
Bell Disconnect / Max Current Trouble	497 & 505	Bell 1 Trouble	321
Low Battery	498 & 506	Low System Battery	302
AC Fail	499 & 507	AC Loss	301
Fire Loop Trouble	500 & 508	Fire Loop Trouble	373
Timer Loss / Timer Programmed	501 & 509	Time/Date Reset	625
TLM Trouble Restore	511	Telco 1 Fault	351
Test Report	512	Periodic Test	602
Panic #1 (keys 1+3)	513	Panic Alarm	120
Panic #2 (keys 4+6)	514	Medical	100
Panic #3 (keys 7+9)	515	Fire Alarm	110
Duress	520	Duress	121
Late to Close or No Movement	516 & 517	Late to Open/Close	404
Partial Arming	518	Bypass	570
Recent Close	519	Open/Close	400
Espload Log-In	524	Remote Access	410
Program Change	525	Program Changed	306

6.5.2 Ademco Contact ID (programmable codes)

Please note that this format must use a 4-digit system account code (see section 6.4). Ademco Contact ID is a fast communicator format that uses tone transmission instead of pulse transmission. Use the Ademco Contact event list of industry standard messages and event codes found in the programming guide to program the desired event codes into addresses 300 to 527.

6.5.3 Ademco Express

This high-speed reporting format communicates 2-digit (00 to FF) events programmed at addresses 300 to 527 at a speed of 2 seconds per event. Unlike other Ademco formats, the Contact ID Event Codes are not used. Please note this format must use a 4-digit system account code (see section 6.4).

6.5.4 DTMF - no handshake

This format is the same as the Ademco contact ID (programmable codes) except there is no verification of the report code sent (no handshake). Use this format in reporting situations where a central station receiver is not connected to the telephone number. It is also useful for personal reporting where a "handshake" is not required. For example, in "double reporting" mode, the first central station number can be connected to a receiver, while the second can be used for personal reporting using "no handshake" format. The panel will make two attempts to call the "no handshake" number. Please note this format must use a 4-digit system account code (see section 6.4).

6.5.5 Standard Pulse Formats

The control panel supports the following pulse reporting formats (see table 4 on the previous page): Ademco slow, Silent Knight, Sescoa, and Radionics.

6.6 Reporting Event Codes

Streamline - Sections 11 to 67 † Hexa Programming - Addresses 300-527

An Event Code is a 2-digit hexadecimal value, consisting of numbers from 00-FF. Each address between 300 and 527 represents a specific event, as described below and in the "*Programming Guide*". When an event occurs in the system, the control panel will attempt to transmit the 2-digit Event Code programmed at the corresponding address to the central station. The method of Event Code transmission is dependent on the *Communicator Formats* (see section 6.5) and the *Reporting Options* (see section 6.1).

Note:You do not need to program addresses 300-527 if using the Ademco Contact I.D. (all codes) format. If you plan to program most of the event code addresses, we suggest you use the *Hexa Streamlined Section Programming Method* as described in section 4.2.2. Otherwise, use the *Hexa Programming Method* as described in section 4.2.1.

6.6.1 Arming Codes

Streamline - Sections 11 to 23 † Hexa Programming - Addresses ***300-349***

Whenever the system is armed, the control panel will send the programmed event code to the Central Station identifying who or how the system was armed.

6.6.2 Disarming Codes

Streamline - Sections 23 to 35 † Hexa Programming - Addresses ***350-399***

Whenever the system is disarmed, the control panel will send the programmed event code to the Central Station identifying who disarmed the system.

6.6.3 Alarm Codes

Streamline - Section 36 to 41 † Hexa Programming - Addresses ***400-423***

Whenever an alarm occurs, the control panel will send the programmed event code to the Central Station identifying which zone generated an alarm.

6.6.4 Restore Codes

Streamline - Sections 42 to 47 † Hexa Programming - Addresses ***424-447***

The control panel will send the programmed event code to the Central Station as soon as the zone closes after having generated an alarm or as soon as the zone closes after bell cut-off. For more information, please see *Report Zone Restore Options* in section 6.11.

6.6.5 Shutdown Codes

Streamline - Sections 48 to 53 ↟ Hexa Programming - Addresses ***448-471***

If the Auto Zone Shutdown (see section 7.11.1) feature is enabled, the control panel will send the programmed event code to the Central Station identifying which zones were shutdown.

6.6.6 Tamper/Trouble Codes

Streamline - Sections 54 to 56 ↟ Hexa Programming - Addresses ***472-483***

If the *Tamper/Wire Fault Recognition Options* are disabled (see section 10.7), the control panel will never transmit these event codes. Otherwise, whenever a tamper occurs on a zone, the control panel will send the programmed Event Code to the Central Station. With *Advanced Technology Zoning (ATZ)* enabled (see section 7.2) each Tamper Code address will represent two zones (e.g. Tamper 1 = zones 1 & 2, Tamper 2 = zones 3 & 4, etc.). The control panel will send the programmed Event Code when a tamper occurs on either zone.

6.6.7 Trouble/Restore Codes

Streamline - Sections 60 to 63 ↟ Hexa Programming - Addresses ***496-511***

Each of the these addresses represent a specific trouble or restore condition. The control panel will report the appropriate event code to the central station when one of the following conditions occurs or after the condition has returned to normal.

496 - *Max. Auxiliary Current:* the current draw from auxiliary is ? 1.1A.
504 - *Max. Auxiliary Current Restore*
497 - *Bell Disconnect/Max. Bell Current:* Bell is disconnected or Bell current is ? 3A.
505 - *Bell Disconnect Restore:* No restore code for bell current.
498 - *Battery Disconnect/Low Voltage: Battery disconnected or battery voltage ? 10.5V.*
506 - *Battery Disconnect/Low Voltage Restore*
499 - *Power Failure:* Voltage on AC input is ? 12.5V.
507 - *Power Failure Restore*
500 - *Fire Loop Trouble:* A tamper occurs on a fire zone (Zone 3/24hr.).
508 - *Fire Loop Trouble Restore*
501 - *Timer Loss:* The control panel detects a loss in the panel timer.
509 - *Timer Programmed*
502 to 503 - Reserved for Future Use
510 - *All Tamper/Trouble Codes* (see section 6.6.6) have returned to "normal".
511 - *TLM Trouble Restore:* Telephone line has restored after the TLM (see section 10.1) has detected the loss of a telephone line.

6.6.8 Special Codes

Streamline - Sections 64 to 67 ↟ Hexa Programming - Addresses ***512-527***

Each address represents a special condition in the system. When one of these special conditions occur, the control panel will report the event code associated with the address.

512 - ***Test Report:*** The test report has been activated either manually (see section 6.8) or automatically (see section 6.7).
513 - ***Panic 1:*** Keys [1] and [3] or a PS1 is pressed to activate a Panic 1 alarm
514 - ***Panic 2:*** Keys [4] and [6] are pressed to activate a Panic 2 alarm
515 - ***Panic 3:*** Keys [7] and [9] are pressed to activate a Panic 3 alarm
For more information on Keypad Panic Options see section 10.4

516 - ***Late To Close:*** "*Timed*" *Auto Arming* is enabled (see section 8.1) and the system has **not** automatically armed itself at the specified time.
517 - ***No Movement:*** "*No Movement*" *Auto Arming* is enabled (see section 8.2) and no movement has occurred for the designated amount of time.

518 - ***Partial Arming:*** Whenever the system is "Away" armed, "Stay" armed, or armed while one or more zones are bypassed.
519 - ***Recent Close:*** An alarm occurs shortly after the system has been armed, refer to *Recent Close Delay* in section 6.10.
520 - ***Duress:*** The Duress feature is enabled (see section 3.4) and a User disarms the system using the User Code #48.
524 - ***Log-In (Esploade):*** Esploade software is used to communicate with the Control Panel.
525 - ***Program Change:*** The installer code is used to enter the programming mode
521 to 523 - Reserved for Future Use
526 to 527 - Reserved for Future Use

6.7 Auto Test Report

Decimal Programming ✝ Addresses 046-048
Default: Auto Test Report Disabled
The report code programmed at address 512 will be reported to the central station after the number of days programmed at address 046 and the time programmed at address 047 (hours) and 048 (minutes) has elapsed. To disable this feature, program 000 at address 046. Also note that if [2ND][2ND] is programmed at address 512 nothing will be reported.

[ENTER] + *Installer Code* + **[10] [4] [6]** + *3 digits (days)* + **[10] [4] [7]** + *3 digits (hours)* + **[10] [4] [8]** + *3 digits (minutes)* + **[ENTER]**

6.8 Manual Test Report

Key Access Programming ✝ key [BYP]
Activating the manual test report will send the Event Code programmed at address 512 to the Central Station.

[ENTER] + *(Installer, Master, or User 1 Code)* + **[BYP]** + **[ENTER]**

6.9 Power Failure Report Delay

Decimal Programming ✝ Addresses 054
Default: 30 minutes
After a power failure, the control panel will delay transmission of the event code programmed at address 499 by the period programmed at this address (001 to 255 minutes).

[ENTER] + *Installer Code* + **[10] [5] [4]** + *3-digit decimal value (001-255)* + **[ENTER]**

6.10 Recent Close Delay

Decimal Programming ✝ Addresses 060
Default: Recent Close Delay Disabled
The system will transmit the recent close event code programmed at address 519 if after arming the system, an alarm occurs within the period programmed at this address (001 to 255 minutes). Program 000 into address 060 to disable this feature.

[ENTER] + *Installer Code* + **[10] [6] [10]** + *3-digit decimal value (001-255)* + **[ENTER]**

6.11 Report Zone Restore Options

Feature Select Programming ✝ Address 088; key [BYP]
Default: Zone Restore Codes Transmit on Bell Cut-Off
With the [BYP] key "Off", the report codes programmed at addresses 424-447 (see *Restore Codes* in section 6.6.4) will only transmit if the zone has returned to normal after bell cut-off (see section 8.11). With the [BYP] key "On", the codes will transmit as soon as the zone returns to normal (zone closure).

Key [BYP] "Off": Report on Bell Cut-Off
Key [BYP] "On": Report on Zone Closure
[ENTER] + *Installer Code* + **[10] [8] [8]** + [BYP] *On/Off* + **[ENTER]**

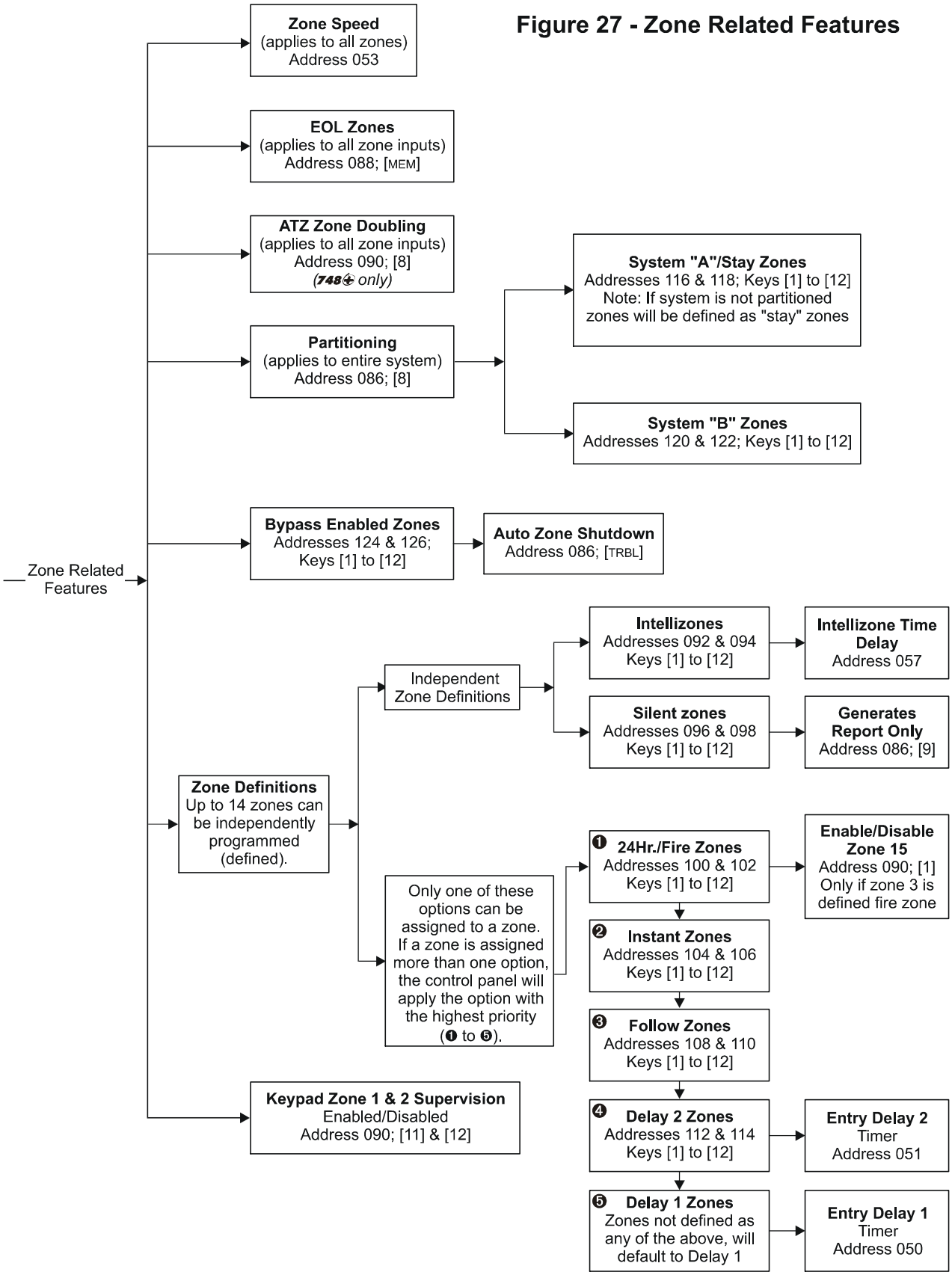
6.12 Report Code Disarming Options

Feature Select Programming ✝ Address 088; key [TRBL]
Default: Disarming Codes Transmit on User Disarming
With the [TRBL] key "OFF", the *Disarming Codes* programmed at addresses 350-399 (see in section 6.6.2) will transmit whenever a User disarms the system. With the [TRBL] key "ON", the control panel will transmit these codes when a User disarms a system in alarm.

Key [TRBL] "Off": Always Report Disarm
Key [TRBL] "On": Report Disarm Only After Alarm
[ENTER] + *Installer Code* + **[10] [8] [8]** + **[TRBL]** *On/Off* + **[ENTER]**

ZONE DEFINITIONS

Figure 27 - Zone Related Features


Zone Related Features
Zone Speed
(applies to all zones)
Address 053
EOL Zones
(applies to all zone inputs)
Address 088; [MEM]
ATZ Zone Doubling
(applies to all zone inputs)
Address 090; [8]
(748 only)
Partitioning
(applies to entire system)
Address 086; [8]
System "A"/Stay Zones
Addresses 116 & 118; Keys [1] to [12]
Note: If system is not partitioned zones will be defined as "stay" zones
System "B" Zones
Addresses 120 & 122; Keys [1] to [12]
Bypass Enabled Zones
Addresses 124 & 126;
Keys [1] to [12]
Auto Zone Shutdown
Address 086; [TRBL]
Zone Definitions
Up to 14 zones can be independently programmed (defined).
Independent Zone Definitions
Intellizones
Addresses 092 & 094
Keys [1] to [12]
Intellizone Time Delay
Address 057
Silent zones
Addresses 096 & 098
Keys [1] to [12]
Generates Report Only
Address 086; [9]
Only one of these options can be assigned to a zone. If a zone is assigned more than one option, the control panel will apply the option with the highest priority (❶ to ❺).
❶ 24Hr./Fire Zones
Addresses 100 & 102
Keys [1] to [12]
Enable/Disable Zone 15
Address 090; [1]
Only if zone 3 is defined fire zone
❷ Instant Zones
Addresses 104 & 106
Keys [1] to [12]
❸ Follow Zones
Addresses 108 & 110
Keys [1] to [12]
❹ Delay 2 Zones
Addresses 112 & 114
Keys [1] to [12]
Entry Delay 2
Timer
Address 051
❺ Delay 1 Zones
Zones not defined as any of the above, will default to Delay 1
Entry Delay 1
Timer
Address 050
Keypad Zone 1 & 2 Supervision
Enabled/Disabled
Address 090; [11] & [12]

7.1 Zone Speed

Decimal Programming ✝ Address 053
Default: 600mS
The zone speed applies to all zones whether the system is armed or disarmed. The zone speed defines how quickly the control panel will respond to an open zone. The control panel will not display and/or respond to an open zone until the programmed zone speed elapses. All other zone definitions and options do not come into effect until the zone speed has elapsed.

> *Example: The system is armed and the zone speed is set for 1.2 seconds. A zone opens and closes in less than 1.2 seconds the control panel will not respond (i.e. no reporting, no alarm and no display on keypad).*

The zone speed can be set from 15ms to 3.8s (001 to 255 X 15ms). This feature prevents any momentary glitches in the system from causing an alarm or unnecessary reporting.

[ENTER] + *Installer Code* + **[10] [5] [3]** + *3 digit decimal value (001-255)* + **[ENTER]**

7.2 Advanced Technology Zoning (ATZ)

Feature Select Programming ✝ Address 090, key [8]
Default: ATZ Disabled
This feature is not available on the 748 EXPRESS ✆ control panels. Enabling the ATZ feature allows you to install two detection devices per zone input. Each detection device will have its own zone number and each will transmit a separate alarm code that will display on the keypad. For information on how to connect the detection devices and how the panel recognizes them, please refer to section 2.10.

Key [8] "Off": ATZ Disabled
Key [8] "On": ATZ Enabled
[ENTER] + *Installer Code* + **[10] [9] [10]** + **[8]** *On/Off* + **[ENTER]**

7.3 Intellizones

Feature Select Programming ✝ Addresses 092 & 094, keys [1] to [12]
If an alarm condition occurs on a zone identified as Intellizone, the control panel will trigger a timer and will not generate an alarm until one of the following conditions occurs within a specified period (see *Intellizone Time Delay* below):

- ✝ An alarm condition occurs on another zone during intellizone time delay.
- ✝ The zone that is in alarm has restored and re-occurred during intellizone time delay.
- ✝ The zone that is in alarm remains in alarm the entire intellizone time delay.

Note: Intellizone timer will only begin after the zone speed period has elapsed (see section 7.1).

Do not use the Intellizone feature on zones programmed with any Entry Delay! An alarm may occur when disarming the system.

7.3.1 Intellizone Time Delay

Decimal Programming ✝ Address 057
Default: 48 seconds
You can set the Intellizone Time Delay between 010 and 255 seconds. Before an Intellizone can generate an alarm, one of three conditions must occur during this time delay (see section 7.3).

[ENTER] + *Installer Code* + **[10] [5] [7]** + *3-digit decimal value (010-255)* + **[ENTER]**

7.4 Silent Zones

Feature Select Programming ✝ Addresses 096 & 098, keys [1] to [12]

Using the "*Feature Select Programming Method*", select which zones will be defined as Silent Zones. If an alarm occurs on a Silent Zone, the control panel will report the alarm (see *Event Reporting* in section 6) to the central station without triggering any bells and/or sirens. Note if zone 3 is defined as 24 hour (fire zone), the control panel will generate an audible alarm, overriding a silent zone definition.

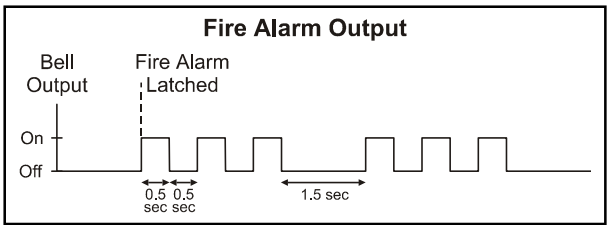
7.5 "24 Hour" & Fire Zones

Feature Select Programming ✝ Addresses 100 & 102 , keys [1] to [12]

Using the "*Feature Select Programming Method*", select which zones will be defined as 24 hour Zones. **Keypad zones should not be programmed as 24hr zones**. Regardless of the system's armed status, an open "24hr" zone will always generate an alarm.

If zone 3 is defined as "24 hour", it becomes a "Fire Zone". Connect the smoke detectors as described in section 2.11. An open "Fire Zone" will generate the following:

- ✝ The panel will send a fire loop trouble report (if programmed at address 500) to the Central.
- ✝ A trouble indicator, key [11], and a fire zone indicator, key [3], will flash on the keypad.
- ✝ Alarms will generate an intermittent output signal (see figure below), regardless of the system's current arming status.
- ✝ Alarms are always audible, regardless of other settings.



7.5.1 Zone 15 (Enable/Disable)

Feature Select Programming ✝ Address 090, key [1]

Default: Zone 15 Enabled

If the ATZ feature is enabled and zone 3 has been set as a fire zone, zone 15 must be disabled if it is not going to be used.

Key [1] "Off": Zone 15 Enabled
Key [1] "On": Zone 15 Disabled
[ENTER] + *Installer Code* + **[10] [9] [10]** + **[1]** *On/Off* + **[ENTER]**

7.6 Instant Zones

Feature Select Programming ✝ Addresses 104 & 106, keys [1] to [12]

Using the "*Feature Select Programming Method*", select which zones will be defined as Instant Zones. If an "Instant" zone opens, the control panel will immediately generate an alarm after the "Zone Speed" has elapsed.

7.7 Follow Zones

Feature Select Programming ✝ Addresses 108 & 110, keys [1] to [12]

Using the "*Feature Select Programming Method*", select which zones will be defined as Follow

Zones. Follow zones function as follows:

- If a follow zone opens and no entry delay zones have been triggered; the control panel will immediately generate an alarm after the zone speed has elapsed.
- If a follow zone opens during another zone's entry delay period, the control panel will wait until the end of the entry delay period before generating an alarm.
- If a follow zone opens when more than one entry delay zone has been triggered, the panel will wait until the end of the entry delay zone that opened first before generating an alarm.

7.8 Entry Delay 1

Decimal Programming † Address 050
Default: 45 seconds
Any zone that has not been identified as either *Instant Zones, Follow Zones, Entry Delay 2, or "24 Hour" & Fire Zones* (see above) will automatically default to Delay 1. You can program the Delay 1 period between 001 and 255 seconds into address 050. If a zone defined as Delay 1 opens in an armed system, the control panel will wait the pre-programmed period before generating an alarm. This provides the users the time required to disarm the system when entering the protected area.

[ENTER] + *Installer Code* + **[10] [5] [10]** + *3-digit decimal value (001-255)* + **[ENTER]**

7.9 Entry Delay 2

Feature Select Programming † Addresses 112 & 114, keys [1] to [12]
Using the "*Feature Select Programming Method*", select which zones will be defined as Entry Delay 2 Zones. If a zone defined as Delay 2 opens in an armed system, the control panel will wait the *Entry Time Delay 2* (see below) period before generating an alarm. This provides the users the time required to disarm the system when entering the protected area.

7.9.1 Entry Time Delay 2

Decimal Programming † Address 051
Default: 45 seconds
This applies to all zones defined as Delay 2 (see *Entry Delay 2* above). You can program the Delay 2 between 001 and 255 seconds.

[ENTER] + *Installer Code* + **[10] [5] [1]** + *3-digit decimal value (001-255)* + **[ENTER]**

7.10 Partitioning

Feature Select Programming † Address 086, key [8]
This feature divides the alarm system into two distinct systems, identified as "System A" and "System B". You can assign each zone to System A, System B, both systems, or neither system. Partitioning works as follows:

- Zones assigned to System A, will arm/disarm when the system is "System A Armed/Disarmed".
- Zones assigned to System B, will arm/disarm when the system is "System B Armed/Disarmed".
- Zones assigned to both systems ("dual area") will arm when the system is either "System A Armed", "System B Armed" or when both systems are armed and will disarm only when both systems disarm.
- Zones not identified to any system ("common area") will arm only when the system is both "System A Armed" and "System B Armed" and will only disarm when at least one of the two systems disarms.

For more information on arming and disarming partitions, see section 11.5. Also see *Code Priority* in section 8.12.

7.10.1 "System A"/Stay Zones

Feature Select Programming ✝ Addresses 116 & 118, keys [1] to [12]
Using the "*Feature Select Programming Method*", select which zones will be assigned to "System A" or if the system isn't partitioned which zones will be identified as Stay Zones. For details on "System A" zones refer to *Partitioning* above. For details on *Stay Arming* see section 11.4.

7.10.2 "System B" Zones

Feature Select Programming ✝ Address 120 & 122, keys [1] to [12]
Using the "*Feature Select Programming Method*", select which zones will be assigned to "System B". For details on "System B" zones refer to *Partitioning* above.

7.11 Bypass Enabled Zones

Feature Select Programming ✝ Addresses 124 & 126, keys [1] to [12]
Using the "Feature Select Programming Method", select which zones will be defined as Bypass Enabled. Only zones defined as bypass enabled can be used for *Manual Zone Bypassing* (section 11.9) or during Auto Zone Shutdown (see below).

7.11.1 Auto Zone Shutdown

Feature Select Programming ✝ Address 086 key [TRBL]
Default: Auto Zone Shutdown Disabled
The control panel will automatically bypass any "Bypass Enabled Zones" which initiate 5 consecutive alarms in the same-armed period. Therefore, the zone will no longer generate an alarm. After the control panel has bypassed a zone, it will report an event code to the Central Station if programmed at addresses 448-461.

This feature is also a function of the Report Zone Restore Options (see section 6.11). If this option is set for report zone restore on bell cut-off, the zone will only be bypassed after the bell or siren has cut-off 5 consecutive times in the same armed period. While if the option is set for report zone on zone closure, the zone will be bypassed when the zone has opened and closed 5 consecutive times in one armed period.

Key [TRBL] "Off": Auto Zone Shutdown Disabled
Key [TRBL] "On": Auto Zone Shutdown Enabled
[ENTER] + *Installer Code* + **[10] [8] [6]** + **[TRBL]** *On/Off* + **[ENTER]**

7.12 EOL Zones (Enabled/Disabled)

Feature Select Programming ✝ Address 088; key [MEM]
If the system requires the use of 1K? end of line resistors on zone input terminals, enable this feature (see *Zone Connections* in sections 2.8 to 2.10).

Key [MEM] "Off": Input Zones use EOL Resistors
Key [MEM] "On": Input Zones do not use EOL Resistors
[ENTER] + *Installer Code* + **[10] [8] [8]** + **[MEM]** *On/Off* + **[ENTER]**

7.13 Keypad Zone 1 Supervision

Feature Select Programming ✝ Address 090, key [11]
Default: Disabled
When using a keypad defined as keypad zone 1, enable this feature. When enabled, the control panel will verify the presence of a keypad and the keypad zone. For more information see *Keypad Zone Connections* in section 2.8.

Key [11] "Off": Keypad Zone 1 Disabled
Key [11] "On": Keypad Zone 1 Enabled
[ENTER] + *Installer Code* + **[10] [9] [10]** + **[11]** *On/Off* + **[ENTER]**

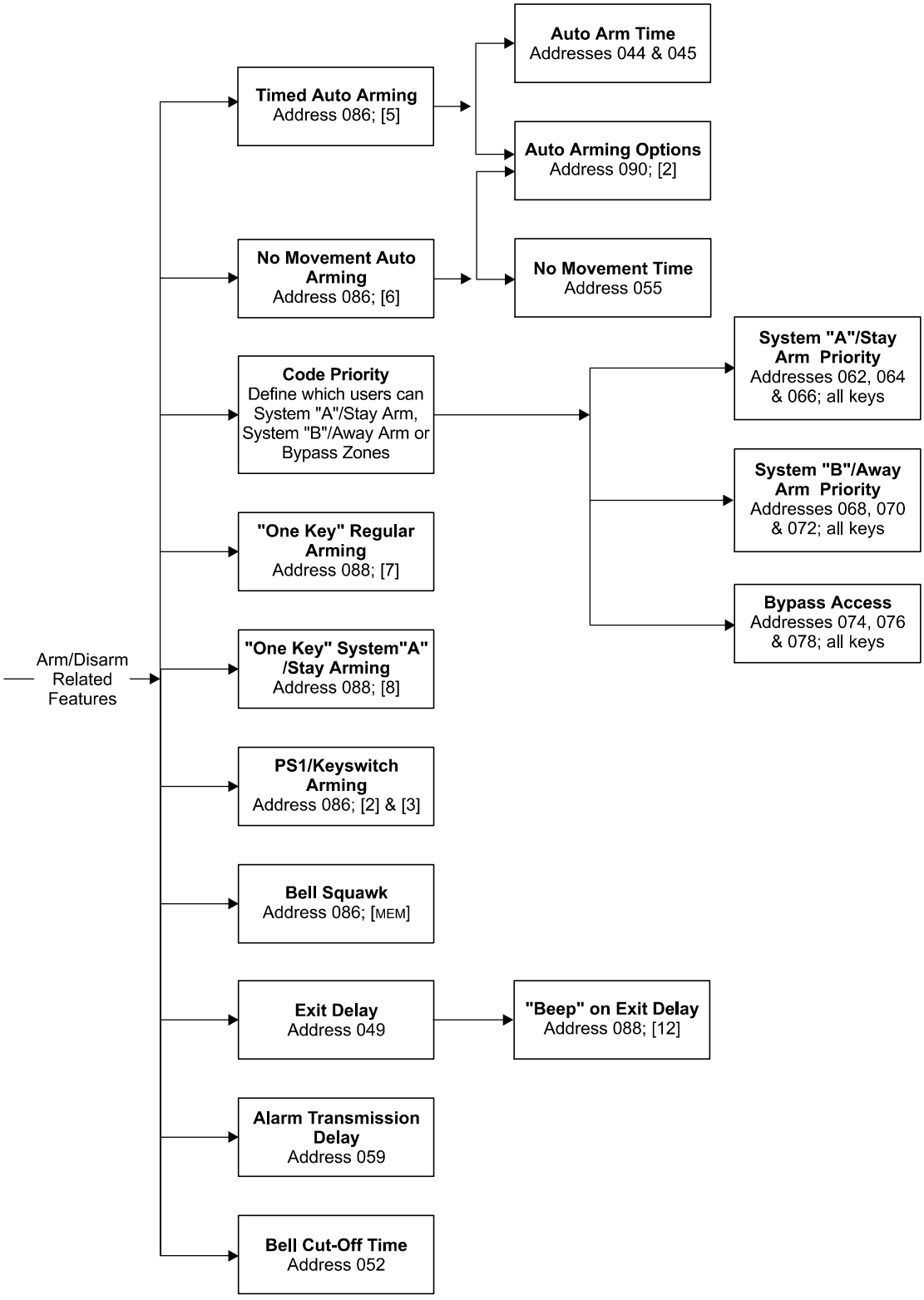
7.14 Keypad Zone 2 Supervision

Feature Select Programming ✝ Address 090, key [12]
Default: Disabled
When using a keypad defined as keypad zone 2, enable this feature. When enabled, the control panel will verify for the presence of a keypad and the keypad zone. For more information see *Keypad Zone Connections* in section 2.8.

Key [12] "Off": Keypad Zone 2 Disabled
Key [12] "On": Keypad Zone 2 Enabled
[ENTER] + *Installer Code* + **[10] [9] [10]** + **[12]** *On/Off* + **[ENTER]**

ARM/DISARM & ALARM OPTIONS

Figure 28 - Arming/Disarming Related Features



8.1 "Timed" Auto Arming

Feature Select Programming ✝ Address 086, key [5]
Default: "Timed" Auto Arming Disabled
The alarm system will automatically arm itself at a specified time everyday. Note, as with regular arming, the system will not arm if a zone is open and will report a "late to close" to the central. If this occurs, the system will not arm until the next day. The type of arming is dependent on the *Auto Arming Options* (see below). Program the *Auto Arm Time* as described below.

8.1.1 Auto Arm Time

The control panel will automatically arm itself at the specified time if "*Timed*" *Auto Arming* (see above) is enabled. The time is programmed using the 24-hour clock (i.e. 8:00PM = 20:00). There are two methods of programming the "Auto Arm Time" as described below.

- *Decimal Programming ✝ Address 044 & 045*
  Program the "Auto Arm Time" in hours into address 044 and the "Auto Arm Time" in minutes into address 045.
  [ENTER] + Installer Code + **[10] [4] [4]** + 3-digit decimal value (hours) + **[10] [4] [5]** + 3-digit decimal value (minutes) + **[ENTER]**

- *Key Access Programming ✝ key [9]*
  The User 1, Master, or Installer can program the "Auto Arm Time" using this method.
  [ENTER] + (Installer, Master, or User 1 Code) + **[9]** + 2 digits representing hours + 2 digits representing minutes + **[ENTER]**

8.1.2 Auto Arming Options

Feature Select Programming ✝ Address 090, key [2]
Default: Regular Arming
The "Auto Arm" feature will arm the system as described in the table below.

Key [2]	Partitioning	Options
Off	Off	"Regular Arming"
Off	On	"System A and B Arming"
On	Off	"Stay Arming"
On	On	"System A Arming"

[ENTER] + *Installer Code* + **[10] [9] [10]** + **[2]** *On/Off* + **[ENTER]**

8.2 "No Movement" Auto Arming

Feature Select Programming ✝ Address 086, key [6]
Default: Disabled
If the control panel does not detect any movement (zone openings) for a specified period, the panel will arm the system and transmit the event code programmed at address 517. Note the type of arming is dependent on the *Auto Arming Options* (see section 8.1.2). Program the "*No Movement*" *Auto Arm Time* as described below.

Key [6] "Off": No Movement Auto Arm Disabled
Key [6] "On": No Movement Auto Arm Enabled
[ENTER] + *Installer Code* + **[10] [8] [6]** + **[6]** *On/Off* + **[ENTER]**

8.2.1 "No Movement" Auto Arm Time

Decimal Programming ✝ Address 055
Default: Disabled
000 = disabled; (001-255) X 15 minutes

If the "No Movement" Auto Arming (see above) feature is disabled and a time is programmed, the control panel will transmit the event code programmed at address 517 if no movement is detected during the programmed period.

[ENTER] + *Installer Code* + **[10] [5] [5]** + *3-digit decimal value (001-255)* + **[ENTER]**

8.3 "One-Key" Regular Arming

Feature Select Programming ✝ Address 088, key [7]
Default: Disabled
A User can "Regular" arm the system by pressing and holding the [10] key for 2 seconds.

Key [7] "Off": "One Key" Regular Arming Disabled
Key [7] "On": "One Key" Regular Arming Enabled
[ENTER] + *Installer Code* + **[10] [8] [8]** + **[7]** *On/Off* + **[ENTER]**

8.4 "One-Key" Stay/System A Arming

Feature Select Programming ✝ Address 088, key [8]
Default: Disabled
Press and hold the [11] key for 2 seconds to "Stay" arm the system if partitioning is disabled. If the system is partitioned, the control panel will arm System "A".

Key [8] "Off": "One Key" Stay/System A Arming Disabled
Key [8] "On": "One Key" Stay/System A Arming Enabled
[ENTER] + *Installer Code* + **[10] [8] [8]** + **[8]** *On/Off* + **[ENTER]**

8.5 Arming using a keyswitch

Feature Select Programming ✝ Address 086, key [2] & [3]
Default: Disabled
The User can use a keyswitch to "Stay" arm or "Regular" arm/disarm the system. If the system is ready and the button is pressed the system will arm. Pressing the button again will disarm the system. The keyswitch will not disarm a “Stay” armed system in alarm. Refer to section 2.7 for installation of a keyswitch.

[ENTER] + *Installer Code* + **[10] [8] [6]** + **[2]** & **[3]** *On/Off* + **[ENTER]**

Table 6 - Keyswitch Arming Table

Key [2]	Key [3]	Function
Off	Off	Disabled
On	Off	Disabled
Off	On	“Full” Arm
On	On	“Stay” Arm*

*Note: If partitioning is enabled, the keyswitch arms “System A” only.

8.6 Bell Squawk

Feature Select Programming ✝ Address 086; key [MEM]
Default: Disabled
With this feature enabled, the bell or siren will emit a half-second "squawk" upon arming and two half-second "squawks" upon disarming.

Key [MEM] "Off": Bell Squawk Disabled
Key [MEM] "On": Bell Squawk Enabled
[ENTER] + *Installer Code* + **[10] [8] [6]** + **[MEM]** *On/Off* + **[ENTER]**

8.7 Exit Delay

Decimal Programming ✝ Address 049
Default: 60 seconds
Exit Delay applies to all zones. This option determines how much time the user has to leave the protected area before the system arms after entering a valid access code. You can program the Exit Delay from 001 to 255 sec.

[ENTER] + *Installer Code* + **[10] [4] [9]** + *3 digit decimal value (001-255)* + **[ENTER]**

8.8 Beep on Exit delay

Feature Select Programming ✝ Address 088, key [12]
Default: Disabled
With this feature enabled, the keypad will emit an intermittent "beep" during the programmed exit delay period (except when in "stay" arming). The frequency of intermittent beeps increases during the last 10 seconds of the exit delay period. For more information on *Exit Delay* refer to section 8.7.

Key [12] "Off": Beep on Exit Delay Disabled
Key [12] "On": Beep on Exit Delay Enabled
[ENTER] + *Installer Code* + **[10] [8] [8]** + **[12]** *On/Off* + **[ENTER]**

8.9 Alarm Transmission Delay

Decimal Programming ✝ Address 059
This time limit, set between 5 and 63 seconds, is the delay period before reporting an alarm to the central station after an alarm condition. During this period, disarming the system will cancel all pending alarms and send the restore codes. Programming 000-004 in this address disables this feature. Maximum 30 seconds on UL listed systems.

[ENTER] + *Installer Code* + **[10] [5] [9]** + *3-digit decimal value (005-063)* + **[ENTER]**

8.10 Silent Zones & Silent Panics Option

Feature Select Programming ✝ Address 086, key [9]
If the [9] key is on, silent zones or silent panics only transmit a report to the central station. The system will not indicate an alarm and will not have to be disarmed.
Although, the control panel can still activate a PGM. If a keypad panic has been defined as audible, the control panel will override this option.

Key [9] "Off": Silent Zones & Silent Panics generate a silent alarm
Key [9] "On": Silent Zones & Silent Panics generate a report only
[ENTER] + *Installer Code* + **[10] [8] [6]** + **[9]** *On/Off* + **[ENTER]**

8.11 Bell Cut-Off Time

Decimal Programming ✝ Address 052
Default: 5 minutes
After an audible alarm, the bell or siren will stop after the programmed time has elapsed.

[ENTER] + *Installer Code* + **[10] [5] [2]** + *3-digit decimal value (001-255) minutes* + **[ENTER]**

8.12 Code Priority

Feature Select Programming ✝ Address 062-078, [all] keys

In order for a user to arm a partitioned system, to "Stay" arm, to "Away" arm or to manually bypass zones, the user must be given code priority. Using the "*Feature Select Programming Method*", identify which arming method each user can use. For more information on arming/disarming methods please refer to section 11. Also refer to the *"Programming Guide"* for additional information.

✝ Partitioning Disabled:
Addresses 062-066: Selected keys indicate which user codes can activate "Stay" arming.
Addresses 068-072: Selected keys indicate which user codes can activate "Away" arming.
Addresses 074-078: Selected keys indicate which user codes can "Bypass" zones.

✝ Partitioning Enabled:
Addresses 062-066: Selected keys indicate which user codes can arm “System A".
Addresses 068-072: Selected keys indicate which user codes can arm “System B".
Addresses 074-078: Selected keys indicate which user codes can "bypass" zones.

PGM (PROGRAMMABLE OUTPUT)

We strongly suggest using of the Espload software to program the PGM.s

9.1 PGM Types

Streamline - Sections 09 ✝ Hexa Programming - Address 039

These control panels have two programmable outputs (PGMs). When a PGM closes, a ground is supplied to activate any device or relay connected to it, providing up to a maximum of 50mA (UL 30mA). When a PGM opens, the circuit is opened from ground, therefore not providing any power to devices connected to it. To program a PGM you must define the PGM state (normally open or normally closed), the timing (regular or timed) and you must define the type of logic ("OR", "AND", "EQUAL"). To do so, use table 7 to determine which hexa digit to program into address 039, where the first hexa digit programmed corresponds to PGM1 and the second hexa digit corresponds to PGM2.

✝ Regular N.O./N.C.
A triggered PGM will switch to its opposite state (i.e. closed to open or opened to closed). The PGM will return to its original state once the event(s) that triggered it have terminated.

✝ Timed N.O./N.C.
A triggered PGM will switch to its opposite state (i.e. closed to open or opened to closed). The PGM will remain in its opposite state for the period programmed at address 056 (see section 9.2). If the PGM is triggered again before the period has elapsed, the PGM will remain in its opposite state and reset the timer.

✝ "OR" Logic
Will trigger a PGM when at least one event occurs from a specific group of events (e.g. key [1] and/or key [2] is pressed on the keypad).

✝ "AND" Logic
The "AND" logic will trigger a PGM when all events, or more, occur from a specific group of events (e.g. Keys [1] and [2] are pressed simultaneously. Note that pressing those two keys in conjunction with any other key will also trigger the PGM).

✝ "EQUAL" Logic
The "EQUAL" logic will trigger a PGM only when the events from a specific group of events occur (e.g. Key [1] and [2] are pressed. Note the PGM will only trigger when pressing keys [1] and [2] simultaneously, if any other key is pressed at the same time (e.g. [1], [2] & [3]) the PGM will not trigger).

Table 7 - PGM Type Selection

KEY		KEY	
[2ND] : OR	Reg N.O.	[8] : OR	Reg N.C.
[1] : AND		[9] : AND	
[2] : EQUAL		[10] : EQUAL	
[4] : OR	Timed N.O.	[12] : OR	Timed N.C.
[5] : AND		[BYP] : AND	
[6] : EQUAL		[MEM] : EQUAL	

(For timed PGM see also address **056**)

[ENTER] + Installer Code + **[10] [3] [9]** + first digit (PGM1) + second digit (PGM2) + **[ENTER]**

9.2 PGM Timer Setting

Decimal Programming ✝ Address 056
Default: 5 seconds
You can program the PGM Timer from 1 to 127 seconds or 1 to 127 minutes. The PGM Timer applies to both PGMs. To determine the 3-digit decimal value, do the following:

- ✝ To program seconds, the required time is respective to the decimal value
  1 second = 001, 55 seconds = 055, 127 seconds = 127.
- ✝ To program the minutes add the required minutes to 128:
  5 minutes: 128 + 5 = 133
  127 minutes: 128 +127 = 255

[ENTER] + *Installer Code* + **[10] [5] [6]** + *3-digit decimal value (001-255)* + **[ENTER]**

9.3 PGM Options

Streamline - Section 10 ✝ Hexa Programming - Addresses 040 to 043
The PGM options define which sequence of events will trigger the PGM. The PGM options are virtually endless. Therefore, to list them in the manual is impractical. Table 8, contains a list of the most commonly used PGM options with the required 2-digit data for each address. If other options are required, you can fax your requests to Paradox Technical Support, you can visit our web site at http://www.paradox.ca. or the 2-digit data can be derived using the Esplode Software as follows:

1) From the "Main Menu" select Accounts
2) Select a current Account or create a new one
3) Press the **?** key until page 9 appears
4) Using the arrow keys and space bar select the PGM options, state, logic and type for the PGM
5) Press the **?** key to view the "Hexadecimal Mode". This mode will display the 2-digit data for addresses 039 to 043.
6) Record these numbers and program them into the control panel or use the Esplode Software to download the data directly to the control panel.

If you do not have a copy of the Esplode Software, you can obtain a **FREE** copy from your local Paradox distributor.

Table 8 - Commonly Used PGM Options

State	Option	PGM1			PGM2		
		1ST digit add. 039	add. 040	add. 042	2ND digit add. 039	add. 041	add. 043
Timed N.O.	Output enabled for 3 sec. Before communication attempt*	[5]	[5]/[2]	[2ND]/[8]	[5]	[5]/[2]	[2ND]/[8]
Regular N.O.	Output enabled when keys [1] & [2] are pressed simultaneously	[1]	[5]/[8]	[2ND]/[6]	[1]	[5]/[8]	[2ND]/[6]
Regular N.O.	Output enabled when system armed	[2ND]	[2]/[9]	[2ND]/[3]	[2ND]	[2]/[9]	[2ND]/[3]
Regular N.O.	Output enabled during an alarm	[2ND]	[2]/[12]	[2ND]/[2]	[2ND]	[2]/[12]	[2ND]/[2]
Timed N.O.	Output enabled for 2 min. upon fail to communicate	[5]	[2]/[6]	[2ND]/[4]	[5]	[2]/[6]	[2ND]/[4]
Regular N.O.	Output enabled after one failed communication attempt.	[2ND]	[7]/[10]	[2ND]/[MEM]	[2ND]	[7]/[10]	[2ND]/[MEM]
Timed N.O.	Output enabled for 3 sec. after signal received at monitoring station	[5]	[7]/[BYP]	[2ND]/[8]	[5]	[7]/[BYP]	[2ND]/[8]

*Not permitted on UL listed systems.

OTHER OPTIONS

10.1 Telephone Line Monitoring (TLM)

Feature Select Programming ✝ Address 086, key [2ND] & [1]
Default: TLM Disabled
When enabled, the system verifies the existence of a telephone line every 4 seconds. After each successful test, the dialer LED (green light) on the control panel flashes briefly. If the test fails the LED flashes on and off until the control panel detects the telephone line again. TLM will activate a trouble when less than 3 volts is detected in four consecutive tests.
Note: when the dialer detects a telephone ring, the TLM test stops for 1 minute.

There are three TLM options, which are set as indicated in table 9:

1) **OFF/ON:** Line test failure will generate a trouble indication; key [10] will illuminate on the keypad.
2) **ON/OFF:** Line test failure will generate a trouble indication and an alarm if the system is armed.
3) **ON/ON:** Line test failure will generate a trouble indication and cause a silent zone or a silent panic alarm to switch to audible mode.

Table 9 - Telephone Line Monitoring (TLM)

KEY [2ND]	KEY [1]	
OFF	OFF	— TLM is disabled (default)
OFF	ON	— TLM generate a trouble only
ON	OFF	— generates an alarm if armed
ON	ON	— silent alarm becomes audible

(address **086**, key **[9]** has to be **OFF**)

[ENTER] + *Installer Code* + **[10] [8] [6]** + **[2ND] & [1]** *On/Off* + **[ENTER]**

10.2 Dialing Options

Feature Select Programming ✝ Address 086, key [7]
Default: Pulse Dialing
You can program the control panel to use the pulse dialing or tone/DTMF dialing format.

Key [7] "Off": Pulse Dialing
Key [7] "On": Tone/DTMF Dialing
[ENTER] + *Installer Code* + **[10] [8] [6]** + **[7]** *On/Off* + **[ENTER]**

10.3 Dialing Pulse Rates

Feature Select Programming ✝ Address 086, key [10]
This selection reflects the ratio between "pulse" time and "quiet" time. Select Pulse Europe for a 1:2 ratio and select Pulse USA for 1:1.5. Must be set to pulse dialing mode, refer to section 10.2.

Key [10] "Off": Pulse Europe 1:2
Key [10] "On": Pulse USA 1:1.5
[ENTER] + *Installer Code* + **[10] [8] [6]** + **[10]** *On/Off* + **[ENTER]**

10.4 Keypad Panic Options

Feature Select Programming ✝ Address 088 keys [1] to [6]
This feature will generate an alarm when the User presses two specific keys on the keypad simultaneously for 2 seconds as described below:

Key **[1]** "on" = Panic 1 (keys [1] and [3] or PS1) enabled
Key **[2]** "on" = Panic 2 (keys [4] and [6]) enabled
Key **[3]** "on" = Panic 3 (keys [7] and [9]) enabled

Keypad panic options:
Key **[4]** "off" = Panic 1 silent
Key **[4]** "on" = Panic 1 audible

Key **[5]** "off" = Panic 2 silent
Key **[5]** "on" = Panic 2 audible

Key **[6]** "off" = Panic 3 silent
Key **[6]** "on" = Panic 3 fire alarm

[ENTER] + *Installer Code* + **[10] [8] [8] + [1]** to **[6]** *On/Off* + **[ENTER]**

Silent operation:
When using the panic keys or the PS1, the control panel will emit a single confirmation beep. The control panel will transmit the event codes programmed at addresses 513, 514, and 515. The alarm will latch (no audible alarm) and the "armed" light on the keypad will flash until the system is disarmed by a valid User code.

Audible operation:
Same as silent operation, except the alarm output (bell/siren) will activate until the system is disarmed by a valid User code or until the *Bell Cut-Off Time* (see section 8.11) elapses.

Fire operation:
Same as audible operation except that bell/siren output will be pulsed (see Fire Alarm Output figure on page 30).

10.5 Panel Time

Key Access Programming † key [MEM]
To program the current time into the control panel press:

[ENTER] + *(Installer, Master, or User 1 Code)* + **[MEM]** + *2 digits representing hours (00-23)* + *2 digits representing minutes (00-59)*

10.6 Time Correction

Streamline - Section 09 † Hexa Programming - Address 037
If you notice a gain or loss in the control panel time, calculate the average gain or loss per day; select the "opposite" amount from the Time Correction table in order to automatically correct the time setting every 24 hours.

Example: The control panel loses 4 minutes per month, representing an average loss of 8 seconds per day. Therefore, program [2] (plus 8 seconds) as the second digit in address 037 to compensate for the 8-second loss.

Table 10 - Time Correction

(address **037** second digit)

[2ND] - No adjustment	**[4]** - Plus 16 seconds	**[8]** - Minus 4 seconds	**[12]** - Minus 20 seconds
[1] - Plus 4 seconds	**[5]** - Plus 20 seconds	**[9]** - Minus 8 seconds	**[BYP]** - Minus 24 seconds
[2] - Plus 8 seconds	**[6]** - Plus 24 seconds	**[10]** - Minus 12 seconds	**[MEM]** - Minus 28 seconds
[3] - Plus 12 seconds	**[7]** - Plus 28 seconds	**[11]** - Minus 16 seconds	**[TRBL]** - Minus 32 seconds

10.7 Tamper/Wire Fault Recognition Options

Feature Select Programming ✝ Address 088, keys [10] to [11]

If the control panel detects an open or a short on a zone when the system is armed, regardless of the tamper/wire settings it will always generate an alarm and trouble indicator (key [9]). Alarms will be audible or silent depending on individual zone definitions. If an open or short occurs on a disarmed system, the control panel will generate an incident depending on the following settings:

Key [10]	Key [11]	Tamper Recognition Option
Off	Off	Tamper Wire/Fault Disabled
Off	On	Trouble Indicator Enabled
On	Off	Silent Alarm Enabled
On	On	Audible Alarm Enabled

"Tamper/wire" disabled
Tamper/wiring failure recognition is disabled. Not permitted on UL listed systems.

"Trouble" enabled
Tamper/wiring failure will generate a trouble indicator (key [9]) and a trouble report code (see *Tamper/Trouble Codes* in section 6.6.6.) when the system is disarmed.

"Silent alarm" enabled
Tamper/wiring failure will generate a trouble indicator (key [9]), a trouble report code (see *Tamper/Trouble Codes* in section 6.6.6.) and a silent alarm (no bells/sirens)

"Audible alarm" enabled
Tamper/wiring failure will generate a trouble indicator (key [9]), a trouble report code (see *Tamper/Trouble Codes* in section 6.6.6.) and an audible alarm.

Exception! When the zone definition is "24 hour", the tamper definition follows the audible/silent alarm definition of the "24 hour" zone.

10.8 Tamper Bypass Options

Feature Select Programming ✝ Address 090, key [6]

With this option enabled, the control panel will **not** generate an alarm if a tamper is detected on a bypassed zone while the system is armed. With this option disabled, the control panel will generate an alarm if a tamper is detected on a bypassed zone while the system is armed.

Key [6] "Off": Arm the system if Tamper on Bypassed Zone
Key [6] "On": Do not arm the system if Tamper on Bypassed Zone
[ENTER] + *Installer Code* + **[10] [9] [10]** + **[6]** *On/Off* + **[ENTER]**

10.9 Installer Test Mode

Key Access Programming ✝ key [8]

The "Test Mode" will allow you to perform walk tests where the bell or siren will squawk, to indicate opened zones. To enter or exit the control panel "Test Mode" press:

[ENTER] + *Installer Code* + **[8]** to enable; press **[8]** again to disable

10.10 Exclude Power Failure From Trouble Display

Feature Select Programming ✝ Address 090, key [2ND]
Default: Disabled
Excludes the Power Failure, key [2], from the Trouble Display (see section 11.2).

10.11 Audible Trouble Warning

Feature Select Programming ✝ Address 090, key [9]
Default: Disabled
Trouble conditions will emit an intermittent "beep" on the keypad. To silence the trouble warning, press the [TRBL] key.

10.12 Power Down Reset

Performing a power down reset will set the installer and master codes to factory default. Values entered at addresses 008-043, 062-124, 300-527, and all user codes will be erased ([2ND], [2ND]). Programmed values for all other addresses do not change. To perform a reset, the installer lock must be disabled. To perform a power down reset perform the following:

1) Verify installer lock is disabled (see section 3.5)
2) Remove the battery and AC power from the control panel.
3) Set the reset jumper to on by placing a jumper on the reset pins of the control panel.
4) Re-connect the AC and battery power to the control panel.
5) Wait 10 seconds and remove the jumper.

USER/KEYPAD FUNCTIONS

The innovative Esprit keypads take a new approach to security features and functions. Each numeral from 1 to 12 on the keypad respectively represents each zone from 1 to 12 on the control panel. When the [2ND] key flashes, press the [2ND] key to view zones 13 to 24, where keys [1] to [12] represent zones 13-24 respectively. When the zone light is "off", the status in the protected zone is normal. If the zone light is "on", this means the zone is open. An LCD keypad will display the open zone numbers on the screen.

The green "ready" indicator on the keypad will illuminate when the status of all the zones is normal (zones are closed). Therefore, all protected windows and doors must be closed and motion detectors must not detect any movement except those zones that have been bypassed.

Confirmation Beep: an intermittent series of beeps ("BEEP-BEEP-BEEP") indicates a successful keypad entry or system operation.

End/Rejection Beep: one long tone ("BEEEEEEEP") indicates incorrect keypad entry or unsuccessful system operation.

11.1 Programming Master & User Codes

The Esprit control panels have one Master (00) code and up to 48 User (01-48) codes. The default Master code is **474747**. The Master code can arm the system using any arming method, can create/modify user codes and can perform Key Access Programming (see section 10.13). The User 1 code can create/modify access codes and perform key access programming. The access code consists of either 4 or 6-digits and each digit can be any value from 0 to 9.
Note: do not enter [2ND] when programming the master code as this will invalidate the master code.

[ENTER] + Master or User 1 Code + 2-digit code number (00-48) + 4 or 6-digit access code + [ENTER]

11.2 Regular Arming

This method, commonly used for day-to-day arming, will arm all the zones in the system. To do so, the keypad's green "READY" light must be illuminated, indicating that all zones are closed. All doors and windows must be closed, and there can be no movement in areas monitored by motion detectors. Once the "READY" light is on, a valid user access code must be entered. If a mistake is made entering the code or if the "READY" indicator is not on when the code was entered, the keypad will emit a "rejection beep" (BEEEEEEEP).

When the correct user access code is entered, the keypad will emit a "confirmation beep" (BEEP-BEEP-BEEP) and the red "ARM" indicator will illuminate. The "READY" light will flash and the keypad will "beep" during the exit delay period (see section 8.7). During the final 10 seconds of the exit delay, the keypad will "beep" and the "READY" indicator will flash at a faster rate. At the end of the exit delay, the keypad will emit a "confirmation beep", the green "READY" indicator will extinguish and the red "ARM" indicator will remain illuminated to indicate that the system is armed.

11.2.1 "One-Key" Regular Arming

To use this feature, enable the "One-Key" Regular Arming option (see section 8.3). When the green "READY" light is on, pressing and holding the [10] key for 2 seconds will arm all zones in the system. This feature can be used to allow specific individuals like service personnel (i.e. cleaners, maintenance) to arm the system when leaving the protected area, without giving

them access to any other control panel operations. The use of a valid access code is still required to disarm the system. For details on "Regular Arming", refer to section 11.2.

11.3 Away Arming

To rapidly arm the system without having to wait for the green "READY" indicator, simply press the [AWAY] key followed by a valid access code. Once the exit delay expires, any open zones will be considered "deactivated" by the control panel. If while the system is armed a "deactivated" zone is closed, the control panel will revert that zone to "active" status, generating an alarm if breached.

If a mistake is made entering the code, the keypad will emit a "rejection beep" (BEEEEEEEP). When the correct user code is entered, the keypad will emit a "confirmation beep" (BEEP-BEEP-BEEP) and the red "ARM" indicator will illuminate. The "READY" light and [AWAY] key will flash and the keypad will "beep" during the exit delay period (see section 8.7). During the final 10 seconds of the exit delay, the keypad will "beep" and the "READY" indicator and [AWAY] key will flash at a faster rate. At the end of the exit delay, the green "READY" indicator will stop flashing, the red "ARM" indicator will remain illuminated and the [AWAY] key will flash. If programmed at address 518, the control panel will send a "partial arm" report code to the central station. Note, to use this method the user must have "away" arming priority, see Code Priority in section 8.12)

11.4 Stay Arming

"Stay" arming allows the user to remain in the protected area while partially arming the system. This means that they can stay in and move around the establishment, while certain designated zones are armed. For example, entry/exit points like doors or windows, the basement, or perhaps all the zones on the perimeter of the establishment may be armed when going to sleep at night, while the other zones remain deactivated. To program which zones will be activated when "stay arming" the system refer to "System A"/Stay Zones in section 7.10.1. Also note that fire zones must be programmed as "stay zones"; they can not be bypassed.

Unlike regular arming, the green "READY" indicator does not have to be illuminated. Only doors and windows programmed as "stay zones" must be closed, and there can be no movement in areas monitored by motion detectors in "stay zones". To "stay" arm the system, press the [STAY] key followed by a valid access code. If a mistake is made entering the code or if a "stay zone" is open when entering the code, the keypad will emit a "rejection beep" (BEEEEEEEP). After entering the correct user access code, the keypad will emit a "confirmation beep" (BEEP-BEEP-BEEP), the "ARM" indicator will illuminate and the green "READY" indicator and [STAY] key will flash during the exit delay period. During the final 10 sec. of the exit delay, the "READY" indicator and [STAY] key will flash at a faster rate. At the end of the exit delay, the keypad will emit a "confirmation beep", the "READY" indicator will stop flashing, the "ARM" indicator will remain illuminated and the [STAY] key will flash. Note, to use this method the user must be given "stay" arming priority, see Code Priority in section 8.12.

11.4.1 "One-Key" Stay Arming

To use this feature, enable the "One-Key" Stay/"System A" Arming option (see section 8.4). When all "stay zones" are closed, pressing and holding the [STAY] key for 2 seconds will arm only zones programmed as "stay zones". For details on "Stay Arming", refer to section 10.4.

11.4.2 "One-Key" Double Stay Arming

During the "stay" arming exit delay (see section 11.4), press and hold the [STAY] key for 2 seconds until you hear a single "beep". This will switch all "entry delay" zones to "instant" zones (see sections 7.6, 7.8 and 7.9). Therefore, any entry delay zone that is breached will immediately generate an alarm instead of waiting a pre-determined period.

11.4.3 Fast Exit

This feature is only available when the system is "Stay" armed (see section 11.4). This feature will allow the user to exit premises while the system is already armed and keep the system armed. This can be done one of two ways:

With the system already "stay" armed (after its exit delay), press and hold the [STAY] key for 2 seconds. The system will switch to exit delay mode (green "READY" indicator flashes), allowing time for the user to exit the premises. At the end of the exit delay period, the system will return to "stay" arm mode.

With the system already "stay" armed, press and hold the [10] key for 2 seconds. The system will switch to exit delay mode (green "READY" indicator flashes). At the end of the exit delay period, the system will "regular" arm the system (see section 11.2).

11.5 Arming/Disarming Partitions

Thanks to the partitioning feature, two distinct systems (A and B) can be created and controlled by the control panel. Partitioning can be used in installations where shared security systems are more practical, such as office/warehouse buildings, or apartment/condominium complexes. Each zone can be assigned to System A, System B, both systems or given no system assignment. User access codes can also be programmed to arm/disarm one system or both systems simultaneously (see Code Priority in section 8.12). Unlike regular arming, the green "READY" indicator does not have to be illuminated. All doors and windows pertaining to the desired system must be closed, and there can be no movement in areas monitored by motion detectors in the desired system.

1) If a user is not given any code priorities, the user can not arm or disarm a partitioned system.
2) If a user is given code priority to one of the two systems, entering the correct access code will arm or disarm the system to which the user was given priority.
3) If a user is given code priority to arm/disarm both systems A & B, it will function as follows:

- If the User enters the correct access code when systems "A" and "B" are disarmed, it will completely arm both systems.
- If the User enters the correct access code when systems "A" and "B" are armed, it will completely disarm both systems.
- When the system is partially armed, (i.e. only “System A" or only “System B" is armed) entering the correct access code will arm the other system.
- To arm/disarm each system separately, do the following:
  Press [STAY] + [VALID ACCESS CODE] to arm/disarm "System A".
  Press [AWAY] + [VALID ACCESS CODE] to arm/disarm "System B".

If a mistake is made entering the code or if a zone in the desired system is open when entering the code, the keypad will emit a "rejection beep" (BEEEEEEEP). When the access code is correctly entered, the keypad will emit a "confirmation beep" (BEEP-BEEP-BEEP). The keypad can display the status of both systems. When "System A" is armed, the [STAY] key and "ARM" indicator will remain on. If System B is armed, the "AWAY" key and "ARM" indicator will remain on. When both systems are armed, all three lights will remain on.

11.5.1 One-Key "System A" Arming

This feature allows the user to arm "System A" without the use of an access code. To use this feature, enable the "One-Key" Stay/"System A" Arming option (see section 7.4). When all the zones in "System A" are closed, press and hold the [STAY] key for 2 seconds to arm "System A". This feature can be used to allow specific individuals like service personnel (i.e. cleaners, maintenance) to arm the system when leaving the protected area, without giving them access to any other control panel operations. For details on "System A" Arming refer to section 11.5.

11.6 System Disarming

The user must enter the protected area through a designated entry/exit point. The keypad will "beep" during the entry delay reminding the user to disarm the system. Upon entry of a valid access code, the red "ARM" indicator will extinguish and the keypad will emit a confirmation "beep" (BEEP-BEEP-BEEP) denoting the system has been disarmed. If an incorrect access code is entered, the keypad will emit a rejection "beep" (BEEEEEEEEP). Press the [CLEAR] key at any time to clear data and re-enter another access code. If an alarm was generated from a fire or 24-hour zone while the system was armed, entering a valid user code will silence the siren. However, you should then check the zone and eliminate the cause of the alarm. If you are unable to pinpoint the reason for the alarm, call your installer.

11.7 Alarm Memory

If an alarm condition occurs when the system is armed, the [MEM] key will turn on. A record of all alarm situations that occur is stored in memory. After disarming the system, pressing once on the **[MEM]** key will display which zones were open during the alarm period by illuminating the corresponding zone indicator(s) or by displaying it on the LCD screen depending on the type of keypad used. Please note if the [MEM] key is pressed again when using LED keypads (636 and 646) you will enter the event display which can only be decoded with a 642 LCD keypad. To exit the alarm memory display, press the **[CLEAR]** key. If using a 642 LCD keypad press the **[MEM]** key followed by the **[INFO]** key and use the UP and DOWN keys to scroll through the event list in memory. The alarms will remain in memory until the system is armed and disarmed without generating an alarm.

11.8 Keyswitch or Pushbutton Arming/Disarming

A keyswitch or push button can be used to "Stay" (section 11.4) or "Regular" (section 11.2) arm/disarm the system. If the system is ready and the button is pressed, the system will arm. Pressing the button again will disarm the system. If a "Stay" armed system is in entry delay or if an alarm has been generated while "Stay" armed, the keyswitch or push button can not be used to disarm the system. In this case, only a keypad can disarm the system. In a partitioned system the keyswitch or push button will arm/disarm "System A" regardless of the "System B" status. To enable this feature and set the options (stay or regular arming) refer to Arming Using Keyswitch in section 8.5.

11.9 Manual Zone Bypassing

When a zone is bypassed it will no longer be monitored by the control panel, hence, will not generate an alarm. A user may wish to bypass certain zones when, for example, workers are renovating part of the establishment or if a component in the system is damaged. Manual bypass arming instructs the control panel to ignore ("deactivate") specified zones in order to arm the remainder of the system. Verify that the following options are set in the control panel so that a user can manually bypass zones:

- You must first define which zones are Bypass Enabled Zones (see section 7.11). Zones not identified as Bypass Enabled can not be bypassed.
- Only users with the appropriate Code Priority (see section 8.12) can bypass zones.
- Please note, the control panel can not bypass fire zones.

To bypass zones, press the [BYP] key followed by a valid access code. If the wrong code was entered or a code without bypass priority, the keypad will emit a "rejection beep" (BEEEEEEEP). If the correct code is entered, the [BYP] key will flash to indicate that you are now in "bypass mode". If there are any currently bypassed zones, their respective zone indicators will turn on. Press the key corresponding to the zone you wish to bypass until their respective zone indicator turns on. If the

zone you wish to bypass has not been programmed as "bypass enabled", the corresponding zone indicator will never turn on. Press the [CLEAR] key to erase the current zone bypass entries and exit the "bypass mode". If you have entered the correct bypass entries, press the [ENTER] key to accept these entries. The [BYP] key will remain on, denoting that zones in the system are currently bypassed, hence, the next time the system is armed, certain zones will be bypassed. When the system is disarmed, the bypass entries will be erased.

11.10 Bypass Recall

This feature permits users to reinstate the last zone bypass entries saved in memory. When the system is disarmed, the bypass entries will be erased. By using the "bypass recall" feature, you can reinstate the previous bypass entries saved in memory. While in the "bypass mode", press the [BYP] + [ENTER] keys and the previous bypass status will be re-established. This eliminates the need to re-enter the bypass entries every time the system is armed. If a user is in the process of entering new bypass entries on the keypad, pressing the [BYP] key will override new information and reinstate previous bypass entries.

11.11 Keypad Chime Zones

A chimed zone "advises" you when a zone is opened by creating a rapid intermittent beep tone (BEEP-BEEP-BEEP-BEEP-BEEP). Up to six zones plus the local keypad zone can be programmed as chime zones. To turn on the "chime zone" feature, press and hold the key corresponding to the desired zone ([1] to [6]) for three seconds until the intermittent chime beep is heard. This means that the chime feature has been activated. If a continuous beep is heard, this means that the chime beep has been deactivated. To enable the chime feature on the keypad zone, press and hold the [8] key for three seconds. To mute the keypad's alarm sounder, press and hold the [9] key for three seconds until the intermittent chime beep is heard. This means that the muting feature has been activated. If a continuous beep is heard, this means that the muting feature has been deactivated. If there is more than one keypad in the system, please "chime" program each keypad separately. Keypad chimes must be reprogrammed if the panel suffers a total power loss.

Key [1]-[6]: Turns chime "on" or "off" in zones numbered 1-6
Key [8]: Turns chime "on" and "off" for the local keypad zone
Key [9]: Turns the keypad's alarm sounder muting "on" or "off"

11.12 Trouble Display Monitoring

Trouble conditions are continuously monitored by the control panel, which recognizes and displays 10 different trouble conditions on the keypad. When a trouble condition occurs, the [TRBL] key will illuminate and the keypad will emit an intermittent beep if the *Audible Trouble Warning* (see section 10.11) is enabled. Press the [TRBL] key to switch to "trouble display" mode. The [TRBL] key will flash and any illuminated keys correspond to a current trouble condition as described below. Press any key to exit the "trouble display" mode.

11.12.1 No Battery/Low Battery - Key [1]

The control panel conducts a dynamic battery test under load every 60 seconds. The illumination of the [1] key indicates that the back-up battery is disconnected or that the battery should be replaced, as it will not provide adequate back-up current in case of AC loss. If the control panel is currently running on battery power, the illumination of the [1] key indicates that the battery voltage has dropped to 10.5 volts or lower.

11.12.2 Power Failure - Key [2]

The control panel conducts a dynamic battery test under load every 60 seconds. The control

panel will detect a power loss if a continuous loss of AC (?12.5V) has occurred during the period between two AC power tests (64 to 116 seconds). If a power loss remains present throughout the *Power Failure Report Delay* (see section 6.9), the panel will transmit the report code programmed at address 507 and the [TRBL] key will flash rapidly indicating a power failure. The trouble indicator is restored if AC is detected during the dynamic battery test. You can remove the power failure trouble indicator from the trouble display by enabling the *Exclude Power Failure From Trouble Display* option (see section 10.10).

11.12.3 Bell Disconnected - Key [4]

The illumination of the [4] key indicates that there is no bell or siren connected to the bell output terminals of the panel. Please note that when connecting a bell or siren to an optional relay output the trouble indicator will always be on. To avoid this, connect a 1K? resistor across the bell output. The control panel only recognizes bells or siren connected directly to the bell output of the control panel not those connected through a relay.

11.12.4 Maximum Bell current - Key [5]

The bell output is microprocessor controlled and will automatically shutdown when the current exceeds 3A. If this occurs, the [5] key will illuminate. After opening the short or reducing the load, the bell current is restored upon the following alarm generation.

This trouble indicator will only appear when the bell is activated (i.e. during an alarm)

11.12.5 Maximum Auxiliary Current - Key [6]

The illumination of the [6] key indicates that the auxiliary current has exceeded 1A. This will cause automatic shutdown of the auxiliary output. After opening the short or reducing the load, the panel will restore power to the auxiliary output following the dynamic battery test (approximately 60 seconds).

11.12.6 Communicator Report Failure - Key [7]

If the control panel was unsuccessful when attempting to communicate with the central station computer or the Esploadsoftware the [7] key will illuminate.

11.12.7 Timer Loss - Key [8]

The illumination of the [8] key indicates that the control panel's internal clock must be re-programmed. To re-program the timer press:

[ENTER] + *(Installer, Master or User 1 Code)* + **[MEM]** + *2 digits (00 to 23) representing hours* + *2 digits (00 to 59) representing minutes* + **[ENTER]**

11.12.8 Tamper/Zone Wiring Failure - Key [9]

If the *Tamper/Wire Fault Recognition* Options (see section 10.7) are enabled, the [9] key will illuminate to indicate a short or cut on a zone input. In order to provide line short recognition the zone connections must have EOL resistors (see Zone Input Terminal Connections sections 2.8 to 2.10).

11.12.9 Telephone Line Monitoring - Key [10]

If the *Telephone Line Monitoring (TLM)* feature (see section 10.1) is enabled, the [10] key will illuminate to indicate that the control panel has not detected the presence of a telephone line for 30 seconds.

11.12.10 Fire Trouble - Key [11]

The illumination of the [11] key indicates a tamper on zone 3, if identified as a fire zone (see "24 Hour" & Fire Zones in section 7.5).

11.13 Key Access Programming

This method allows for quick programming of features without entering addresses or section numbers. The following features are programmed using the installer code as well as the master code and user 1 codes.

- Auto Arm Time: for details see section 8.1.1
- Panel Time: for details see section 10.5
- Manual Test Report: for details see section 6.8
- Call Esploud: for details see section 5.5
- Answer Esploud: for details see section 5.6
- Cancel Communication: for details see section 5.7
- Installer Test Mode: for details see section 10.9

WARRANTY

The Seller warrants its products to be free from defects in materials and workmanship under normal use for statutory or otherwise, including without limitation, any implied warranty of merchantability and fitness for a particular purpose, are expressly excluded. Because Seller does not install or connect the products and because the products may be used in conjunction with products not manufactured by Seller. Seller cannot guarantee the performance of the security system. Seller obligation and liability under this warranty is expressly limited to repaired or replacing, at Seller's option, any product not meeting the specifications. In no event shall the Seller be liable to the buyer or any other person for any loss or damages whether direct or indirect or consequential or incidental, including without limitation, any damages for lost profits stolen goods, or claims by any other party, caused by defective goods or otherwise arising from the improper, incorrect or otherwise faulty installation or use of the merchandise sold.

Requirements and Guidelines for UL INSTALLATIONS

UL has only evaluated the 708, 728, 728 EXPRESS, 738, 738 EXPRESS, 748 and 748ES for compatibility with the Ademco model 685, FBI model CP220FB, SUR-GUARD SG-MLR2-D6 and Silent Knight model 9000.

UL listed in accordance with standard **UL1023** (Household Burglar - Alarm System Units), standard **UL985** (Household Fire Warning Units) and **UL1635** (Digital Alarm Communicator System Units).

Look for the Ⓤ mark on the product. Only products bearing this mark are UL listed.

Some operational features are not permitted in UL installations. To respect the standards for household applications, the installer should follow these guidelines when configuring the system.

1. ALL components of the system should be UL listed for the intended application.

2. If the installation is a FIRE ALARM application, refer to NFPA Standard 74 for details on smoke detector locations. There must be at least one UL-Listed Indoor Fire Alarm Warning Signaling Appliance.

3. For UL Burglar Applications:
   Maximum entry time = UL 45 seconds
   Maximum exit time = UL 60 seconds
   Minimum bell cutoff time = 4 minutes

4. Keypad Models 636, 646 and 642, are not UL listed.

5. The upload/download software should not be used on UL listed systems.

6. All outputs are Class 2 or power-limited, except for the battery terminal. The Class 2 and power-limited fire alarm circuits shall be installed using CL3, CL3R, CL3P or substitute cable permitted by the National Electrical Code, ANSI/NFPA 70.

Requirements and Guidelines for AUSTEL INSTALLATIONS

Austel-approved installations: use a transformer approved by the State Electricity commission, such as "Dyen" PA series 15VAC 22VA. With this transformer, do not exceed the following maximum currents:

- maximum Auxiliary current (including keypads): 300mA
- maximum Bell current :600mA

FCC WARNINGS

IMPORTANT INFORMATION

This equipment complies with Part 68 of the FCC rules. Inside the cover of this equipment is a label that contains, among other information, the FCC registration number of this equipment.

NOTIFICATION TO TELEPHONE COMPANY

Upon request, customer shall notify telephone company of particular line to which the connection will be made, and provide the FCC registration number and the ringer equivalence of the protective circuit.

FCC REGISTRATION NUMBER: 5A7CAN-22633 - AL - E
RINGER EQUIVALENCE NUMBER: 0.1B
USOC JACK: RJ31X (USA), CA31A (CANADA)

TELEPHONE CONNECTION REQUIREMENTS

Except for telephone company-provided ringers, all connections to the telephone network shall be made through standard plugs and telephone company-provided jacks, or equivalent, in such a manner as to allow for easy, immediate disconnection of terminal equipment. Standard jacks shall be so arranged that, if plug connected thereto is withdrawn, no interference to operation of equipment at customer's premises which remains connected to telephone network shall occur by reason of such withdrawal.

INCIDENCE OF HARM

Should terminal equipment/protective circuitry cause harm to telephone network, telephone company shall, where practicable, notify customer that temporary disconnection of service may be required; however, where prior notice is not practicable, the telephone company may temporarily discontinue service if action is deemed reasonable in circumstances. In case of temporary discontinuance, telephone company shall promptly notify customer and will be given opportunity to correct the situation.

CHANGES IN TELEPHONE COMPANY EQUIPMENT OR FACILITIES

The telephone company may make changes in its communication facilities, equipment operations or procedures, where such actions are reasonably required and proper in its business. Should any such changes render customer's terminal equipment incompatible with the telephone company facilities, the customer shall be given adequate notice to effect the modifications to maintain uninterrupted service.

GENERAL

This equipment shall not be used on coin telephone lines. Connection to party line service is subject to state tariffs.

RINGER EQUIVALENCE NUMBER (REN)

The REN is useful to determine the quantity of devices that you may connect to your telephone line and still have all of those devices ring when your telephone number is called. In most, but not all areas, sum of the REN's of all devices connected to one line should not exceed five (5.0). To be certain of the number of devices that you may connect to your line, you may want to contact your local telephone company.

EQUIPMENT MAINTENANCE FACILITY

If you experience trouble with this telephone equipment, please contact facility indicated below for information on obtaining service or repairs. The telephone company may ask that you disconnect this equipment from network until problem is corrected or until you are sure that the equipment is not malfunctioning.

FCC PART 15, WARNINGS INFORMATION TO USER

This equipment has been tested and found to comply with the limits for Class B digital devices, pursuant to Part 15 of FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to equipment intermittently, the user is encouraged to try to correct the interference by one or more of the following measures: (1) reorient or relocate the receiving antenna; (2) increase the separation between the equipment and receiver; (3) connect the equipment to an outlet on a circuit other than the one to which the receiver is connected, or (4) consult the dealer or an experienced radio/tv technician for assistance.

CAUTION:

Changes or modifications not expressly approved by PARADOX SECURITY SYSTEMS could void the user's authority to operate the equipment.

ATTACHMENT LIMITATION NOTICE

The Industry Canada label identifies certified equipment. This certification means that the equipment meets certain telecommunications network protective, operational and safety requirements. The Department does not guarantee the equipment will operate to the user's satisfaction.

Before installing this equipment, users should ensure that it is permissible to be connected to the facilities of the local telecommunications company. The equipment must also be installed using an acceptable method of connection. The customer should be aware that compliance with the above conditions may not prevent degradation of service in some situations.

Repairs to certified equipment should be made by an authorized Canadian maintenance facility designated by the supplier. Any repairs or alterations made by the user to this equipment, or equipment malfunctions, may give the telecommunications company cause to request the user to disconnect the equipment.

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make such connections themselves, but should contact the appropriate electrical inspection authority, or electrician, as appropriate.

The Load Number (LN) assigned to each terminal device denotes the percentage of the total load to be connected to a telephone loop which is used by the device, to prevent overloading. The termination on a loop may consist of any combination of devices subject only to the requirement that the total of the Load Numbers of all of the devices does not exceed 100. The Load Number of this unit is **33**.

Industry Canada certification is only applicable to installation of devices which include transformers approved by the Canadian Standards Association (CSA).

RESTRICTIONS CONCERNANT LE RACCORDEMENT DE MATÉRIEL

L'étiquette d'Industrie Canada identifie le matériel homologué. Cette étiquette certifie que le matériel est conforme à certaines normes de protection, d'exploitation et de sécurité des réseaux de télécommunications. Le Ministère n'assure toutefois pas que le matériel fonctionnera à la satisfaction de l'utilisateur.

Avant d'installer ce matériel, l'utilisateur doit s'assuré qu'il est permis de le raccorder aux installations de l'entreprise locale de télécommunication. Le matériel doit également être installé en suivant une méthode acceptée de raccordement. L'abonné ne doit pas oublier qu'il est possible que la conformité aux conditions énoncées ci-dessus n'empêchent pas la dégradation du service dans certaines situations.

Les réparations de matériel homologué doivent être effectuées par un centre d'entretien canadien autorisé désigné par le fournisseur. La compagnie de télécommunications peut demander à l'utilisateur de débrancher un appareil à la suite de réparations ou de modifications effectués par l'utilisateur ou à cause d'un mauvais fonctionnement.

Pour sa propre protection, l'utilisateur doit s'assurer que tous les fils de mise à la terre de la source d'energie électrique, des lignes téléphoniques et des canalisations d'eau métalliques, s'il y en a, sont raccordés ensemble. Cette précaution est particulièrement importante dans les régions rurales.

AVERTISSEMENT: L'utilisateur ne doit pas tenter de faire ces raccordements lui-même; il doit avoit recours à une service d'inspection des installations électriques, ou à un électricien, selon le cas.

"L'indice de charge (IC) assigné à chaque dispositif indique, pour éviter toute surcharge, le pourcentage de la charge totale qui peut être raccordée à un circuit téléphonique bouclé utilisé par ce dispositif. La terminaison du circuit bouclé peut être constituée de n'importe quelle combinaison de dispositifs, pourvu que la somme des indices de charge de l'ensemble des dispositifs ne dépasse pas 100." L'indice de charge de ce produit est **33**.

La certification d'Industrie Canada s'applique seulement aux installations d'appareils utilisant un transformateur approuvé par l'Association Canadienne de Normalisation (CSA).

INDEX

A

AC Power 3
Access Codes 12
Accessories & Keypads 2
Advanced Technology Zoning (ATZ) 9, 29
Alarm Memory 48
Alarm Report Codes 24
Alarm Transmission Delay 37
Answer Esploud 17
Answering Machine Override . . . . *See Panel Answer Options*
Arm/Disarm & Alarm Options 34
Arming Report Codes 24
Arming using PS1 or keyswitch 36
Arming/Disarming Partitions 47
Audible Trouble Warning 44
Auto Arm Time 35
Auto Arming Options 35
Auto Test Report 26
Auto Zone Shutdown 32
Automatic Event Buffer Transmission 18
Auxiliary Power Terminals 3
Away Arming 46

B

Back-up Battery 3
Battery Test 4
Beep on Exit delay 37
Bell Cut-Off Time 37
Bell Squawk 36
Bell/Siren Output 5
Bypass Arming . . . . . *See Manual Zone Bypassing*
Bypass Enabled Zones 32
Bypass Recall 49

C

Call Back 18
Call Esploud 17
Cancel Communication 18
Central Station Telephone Number 1 21
Central Station Telephone Number 2 22
Chime Zones . . . . . *See Keypad Chime Zones*
Code Priority 38
Codes . . . . . *See Access Codes*
Communicator Formats 22
Computer Telephone Number 17
Control Panel Reset . . . . . *See Power Down Reset*

D

Decimal Programming 14
Dialing Options 41
Dialing Pulse Rates 41
Disarming Report Codes 24
Disarming the System . . . . . *See System Disarming*
Double Reporting 21
Double Stay Arming . . . . . *See One-Key Double Stay Arming*
Double Zone Input Terminal Connections
. . . . . *See Advanced Technology Zoning (ATZ) Connections*
Duress 12

E

Earth Ground 3
Entry Delay 1 31
Entry Delay 2 31
EOL Zones (Enabled/Disabled) 32
Esploud Software 13
Event Reporting 19
Exclude Power Failure From Trouble Display 44
Exit Delay 37

F

Factory Defaults . . . . . *See Power Down Reset*
Fast Exit 46
Feature Select Programming 15
Features 1
Fire Circuit 10
Fire Zones . . . . . *See Twenty-Four Hour & Fire Zones*
Follow Zones 30

G

Grounding . . . . . *See Earth Ground*

H

Hexa Programming 13
Hexa Streamlined Section Programming 14

I

Input Terminal Connections for Single Zones
. . . . . *See Single Zone Input Terminal Connections*
Input Terminal Connections for Zone Doubling
. . . . . *See Advanced Technology Zoning (ATZ) Connections*
Installation 3
Installer Code 12
Installer Lock 12
Installer Test Mode 43
Instant Zones 30
Intellizones 29
Introduction 1

K

Key Access Programming 15, 51
Keypad & Keyswitch Connections 5
Keypad Chime Zones 49
Keypad Function Test 4
Keypad Functions . . . . . *See User/Keypad Functions*
Keypad Panic Options 41
Keypad Zone 1 Supervision 32
Keypad Zone 2 Supervision 33
Keypad Zone Connections 5
Keyswitch or Pushbutton Arming/Disarming 48

L

Location & Mounting 3

M

Manual Test Report 26
Manual Zone Bypassing 48
Master & User Codes 12

N
No Movement Auto Arm Time 35
No Movement Auto Arming 35

O
One-Key "System A" Arming 36, 47
One-Key Double Stay Arming 46
One-Key Regular Arming 36, 45
One-Key Stay Arming 36, 46

P
Panel Answer Options 16
Panel Identifier 17
Panel Settings for Esploade 16
Panel Time 42
Panic Options . . . . . *See Keypad Panic Options*
Partitioning 31
PC Password 17
PGM (Programmable Output) 5, 39
PGM Options 40
PGM Timer Setting 40
PGM Types 39
Power 3
Power Down Reset 44
Power Failure Report Delay 26
Programming Master & User Codes 45
Programming Methods 13

R
Recent Close Delay 26
Regular Arming 45
Regular Reporting 20
Report Code Disarming Options 27
Report Zone Restore Options 27
Reporting Event Codes 24
Reporting Options 20
Reset Factory Defaults . . . . . *See Power Down Reset*
Restore Report Codes 24

S
Serial Output Connector 11
Shutdown Report Codes 25
Silent Zones 30
Silent Zones & Silent Panics Option 37
Single Zone Input Terminal Connections 7
Software, Esploade . . . . . *See Esploade Software*
Special Report Codes 25
Specifications 2
Split Reporting 20
Stay Arming 46
Streamlined Section Programming
. . . . . *See Hexa Streamlined Section Programming*
System A/Stay Zones 31
System Account Codes 22
System B Zones 32
System Disarming 48

T
Tamper Bypass Options 43
Tamper/Trouble Report Codes 25
Tamper/Wire Fault Recognition Options 43
Telephone Formats . . . . . *See Communicator Fomats*
Telephone Line Connection 4
Telephone Line Monitoring (TLM) 41
Testing Mode (System) . . . . . *See Installer Test Mode*
Time Correction 42
Timed Auto Arming 35
Trouble Display Monitoring 49
Trouble/Restore Report Codes 25
Twenty-Four Hour & Fire Zones 30

U
User / Access Code Length 12
User Code Programming
. . . . . *See Programming Master & User Codes*
User/Keypad Functions 45

Z
Zone Bypassing . . . . . *See Manual Zone Bypassing*
Zone Definitions 28
Zone Speed 29

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